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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXX.—No. 4086. MAY 27, 1921.

AN APPEAL TO ENDOW ARCHITECTURAL EDUCATION.

Is there any man so dull as never to lean back in his chair, in an empty moment between eating and travelling and writing letters, to ask what in a hundred years will be left of all his hurry and weariness and busy anxiety? Others will then be hurrying and busy. To them the year 2021 will be the focus of all life. He will only be an "ancestor." And yet it is the deepest-rooted of all instincts to wish to be something more. For this reason man founds a family (though he will perhaps only be known as the man with the odd waistcoat in the family album), or leaves a shilling yearly for ever to three deserving widows (though the wood panel that records the deed will perish at the last), or discovers and explains a law of Nature (but a later philosopher proves it to be nothing but an hypothesis, and supersedes it and him). Perhaps, after all, he who builds achieves a measure of this desired immortality. His name may not survive, but the thing he did survives and the stones he laid and shaped are brushed by the shoulders of his grandchildren's grandchildren. Five hundred see the Houses of Parliament for one who reads Macaulay's Essays; five hundred visit Henry VII's Chapel for one who reads the letters of Margaret Paston.

It is then a high, an almost dizzy, privilege for those of us who have to do with building. By our work will our times be weighed and judged—by the ill-planned, and "pressed reds," and pseudo-Gothic, as much as by the pleasantly sane or the occasional masterpiece. And in this matter the builder is midwife to the architect. How bitter, then, his task will be if the babe is ill-favoured. He must make perpetual what should be stifled at birth. And how he must welcome all great occasions for the exercise of his talents, when he has the opportunity to co-operate in a fine work, and give substance and permanence to something which will be a worthy record for posterity.

Such random thoughts as these are relevant just now when the whole question of architectural education is exercising our minds, and particularly in view of the appeal now being issued by the Architectural Association for a sum of money that will enable it to devote itself unhampered to the needs of such education in London. Few who are interested (and who that reads this is not?) will be able to overlook such an appeal. The largest architectural school and one of the most important in the British Empire is carried on by the Architectural Association—a body which enjoys the patronage of His Majesty the King, and was formed in 1847 for the purpose of fostering architectural education. The School is controlled entirely by the Council of the Architectural Association, and both the Council and the School staff are composed of practising architects, while there are at present 250 men and women students in the School, with further names already entered for two or three years to come. The Association is, however, without endowment of any kind, and a sum of £50,000 is required: (*a*) To pay off the existing debts and mortgages; (*b*) to provide an endowment fund and further scholarships; (*c*) to augment the library, equip a laboratory, &c. The great success of the School of the Association, which is no doubt largely due to the support it has received from the profession generally and to the nature of its curriculum, has resulted in a large influx of students, which has made it necessary during the past few years to expend some £30,000 on altering the premises in Bedford-square, and building new studios. These necessary building operations have left the Association with a debt of some £20,000 due to the contractors, and, although they have very generously agreed to allow a portion of this sum to stand over for a few years at a moderate interest, it is felt that such a debt should be paid off as early as possible. This it is proposed to do by the issue of £20,000 6 per cent. debentures having a first charge on the property of the Association, until such time as donations towards the permanent Endowment Fund place the Association in a position to pay them all off, and we hope that all those interested in the welfare of architecture will subscribe to this issue.

During the war the School was carried on under the greatest difficulties, as, naturally, the whole of the able-bodied students joined the Forces. In maintaining the organisation of the School the Association's funds were depleted. The appeal now issued is supported by the Royal Institute of British Architects and by the Society of Architects, both of which bodies are contributing to the fund. It is felt that the burden of raising the sum required cannot fall solely on the shoulders of architects, who, as a class, have in recent years been more seriously affected financially than perhaps any other. Architects, and others interested in the profession, have already contributed £10,000 to the Association—its entire pre-war capital; and they continue to support it to the extent of some £1,000 annually. It has been decided, therefore, to appeal to a wider body of the public who understand and appreciate art and the value of well-designed towns and buildings. In France and America architectural training has the widespread sympathy and support of the entire educated public. In Great Britain a section of the public is just beginning to realise the importance of the subject, and to this section the Council of the Association confidently appeals for support, which we hope will be forthcoming. Donations, lists of which we hope to publish, should be sent to Mr. Stanley Hamp, Hon. Treasurer, Architectural Association, 34 and 35 Bedford-square, W.C.1.

We have given particulars of this appeal at some length because of the special claim which the Architectural Association has on the support and consideration of the architectural profession and the building industry. To many practising architects the Association has been their *alma mater*, and the services it has rendered to architecture as a teaching body establish a claim on the support of the building public which we cannot think will be ignored. The English architectural student of to-day has a great advantage over students of the past. The systematic architectural education which is to be obtained at the School of the Association and elsewhere is without doubt an advance on the individualistic methods of past days, and though there may be a danger in what has been called the collective individualism which is encouraged in the schools, we cannot help thinking that, on the whole, the present-day methods are not only necessary but are distinctly superior to those of even a generation or two back. But however that may be, there can be no doubt that this appeal of the Association for £50,000 to endow architectural education deserves the support of the profession and the public, and we earnestly hope it will receive it in large measure.

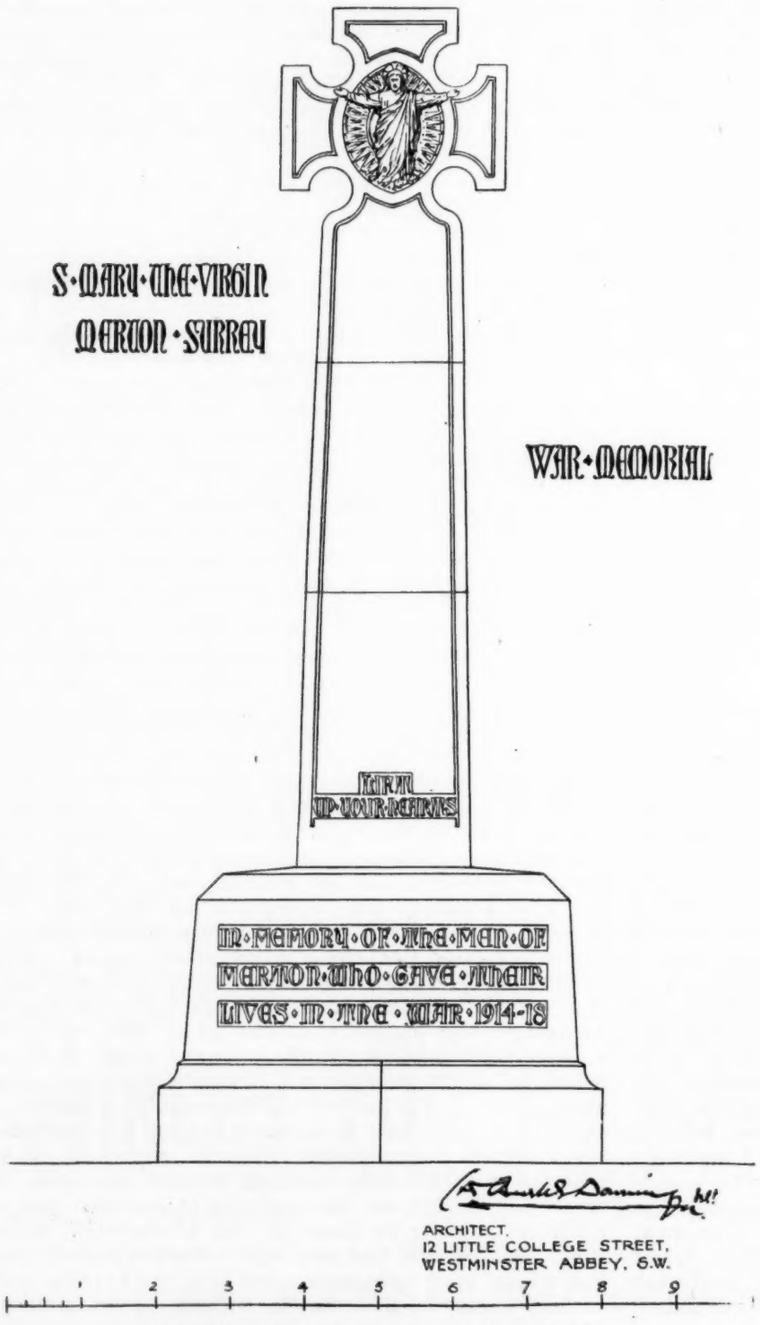
NOTES.

Architectural Criticism.

WITH nearly all that Sir Reginald Blomfield is reported to have said in reference to Mr. Roger Fry's criticism on architects and modern architecture we fully agree. We cannot but think that the critics in their condemnation have in mind a good deal that is not the work of architects at all. The best members of the profession would agree with some of Mr. Fry's strictures, and in their practice have proved it; but are they not more discriminating than the critics? How can we agree that Sir John Soane was one of few tolerable architects since the end of the eighteenth century? And is not Sir Reginald's contention something to the point, that the real source of weakness lies in the view that architecture is regarded more as a business than as an art? What a pity it is that out of the welter of words about art we cannot evolve some sensible action!

The Value of Art.

IT is well to be stirred up by frank criticism, even if it be not altogether sound; but if we want well-balanced and discerning criticism it is perhaps possible that a body similar to the Art Commission of New York, which has done so much for that city, might provide for us in London some official recognition of the value of art in our buildings and surroundings. The president of that commission pertinently observes that the smaller structures in a city may be of greater importance than the larger ones, for lamp-posts, letter-boxes, railings and street signs are indefinitely repeated, whereas the larger matters may be isolated and infrequent. What are we to say of the poverty of our modern equipment in London? Why have we not simple, good name-plates affixed to all our thoroughfares, clear, adequate numbering, and well-designed lamp-standards? Why are our thoroughfares and open spaces so little improved in their general amenity and attractiveness? We strain at a gnat and swallow a camel.



War Memorial at St. Mary the Virgin, Merton.
MR. H. P. BURKE DOWNING, F.S.A., F.R.I.B.A., Architect.

Critics of Modern Architecture.

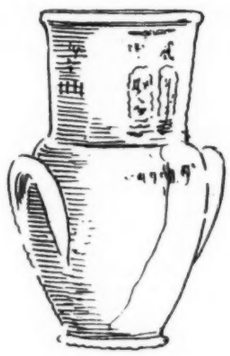
FROM time to time the public are treated to a criticism of modern architecture by those who have a questionable right to speak with authority. At the present time, when our traditional methods of expression in architecture have given place to a somewhat dull and unimaginative revival of a more classic type, there is perhaps a little reason for the somewhat contemptuous criticism which has appeared; but we believe there is an underlying current of sincere effort and inspiration which will bring about a revived interest in modern work. At least, anything is better than indifference. We do not think that either the public or many so-called artists are able to appreciate the full excellence of much modern work. Surely there have been scores of modern architects who, in church and house building, have done something to justify their great inheritance.

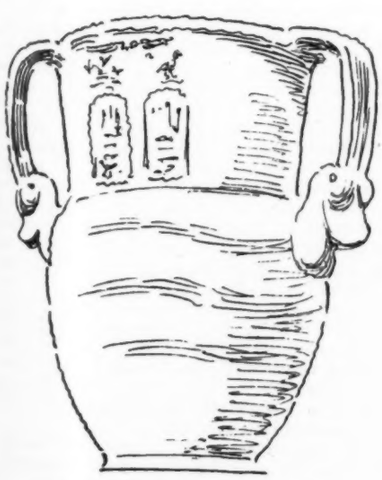
The Hanging at the Royal Academy.

THERE is danger, in the feeling aroused by the rejection of so many pictures by the Hanging Committee of the Royal Academy, lest we should forget the rightness and importance of the step which has been taken as a contribution to the decencies of art. There can be no doubt that the crowding of so many pictures on to the walls in recent years had become almost a scandal, and the Academy has rightly interpreted the public mind in ordering the arrangements for exhibition on such much more intelligent lines. It is a pleasure to walk round the no longer crowded galleries, wherein a reasonable proportion now exists between the scale of the walls and the number of pictures which they can rightly accommodate. Any dislocation arising out of such a change—the disappointment to artists who have not found a place—is not to be weighed against the intrinsic rightness of the change, which does credit to the administration.

The Academy and Art.

AT the same time as we welcome the change, it necessarily demonstrates the limitations of such a body. It cannot be doubted that a considerable number of the pictures submitted, and which were not hung in consequence of the changes made, had as much, if not more, claim to exhibition than some of those accepted. If the Academy held any national status as representing art as a whole, it would rightly be felt that such rejections, in the circumstances of the equal claim to representation of some of the pictures not hung, was unfair. But if we view the Academy in the only proper light, as a society not entitled to the claim to represent art in any national sense, in fact as a private body assuming no such obligation, it dismisses most of the criticism and is much better in the interests of art. The public have to understand—what they are already beginning to learn—that it is on the rightness of their own training and judgment rather than on the security offered by Academies that the prospects of art rest; that with the growth of a completer citizenship a certain disintegration in the influence of institutions is bound to follow. This should not seem strange to those who realise that in the coming of age of citizenship such dependence is no longer desirable.





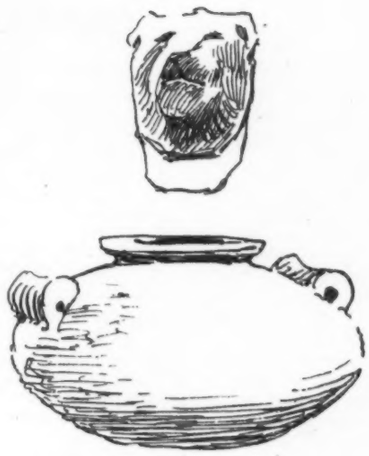
Ancient Egyptian Art at the Burlington Fine Arts Club.

Report of the British Industries Fair.

THIS report, which deals amongst other things with the consideration of the trades which should be included, and the classes of exhibitors who should be allowed to participate, is of special interest in the light of the closing down of the British Institute of Industrial Art; a body which erected its superstructure before laying the foundation on which it was to stand. If the British Industries Fair, as is stated in this report, is to include "all branches of British industry desiring to participate," it will encourage by such means as are forthcoming the participation of the personal craftsman, and we are justified in saying that we believe its desire is to do so. The small craftsman, of which there are not a few, is in a difficulty as to finding his market, but, though working in a more limited field in regard to supply, he is yet capable of exercising a considerable influence on the character of British industries. It would appear that the closing down of the British Institute—if it should mean that the personal craftsman, as an alternative open to him, participated in the British Industries Fair—was not a very serious matter. In the one or two cases in which personal craftsmen have brought their work before the buyer at these Fairs the response has been most encouraging. The difficulties of cost may be solved by co-operation between craftsmen and the help of the Board of Trade, who would perhaps be willing to consider whether, as the individual craft worker is in no sort of competitive relation with the manufacturer, he should not be allowed to sell retail at the Fair.

Skilled Employment and Apprenticeship.

WITH the steady growth of unemployment in our midst it is important that the mass of girls and boys leaving school should be able to obtain the best advice in choosing a career. For fourteen years the Skilled Employment and Apprenticeship Association has been gathering information under this head and redistributing it as required, and propaganda is now being carried on in favour of giving young people an opportunity to become skilled workers under the best conditions attainable. In the past the advisory work in connection with the choice of employment has received a great deal of voluntary assistance, which has fallen off in recent years, and the Association makes an urgent appeal "to all who are concerned with the future welfare of the rising generation to become members of the Association and workers on local committees," in order that the right placing of girls and boys, which is of vital interest to the nation, may be continued.



Ancient Egyptian Art at the Burlington Fine Arts Club.

Breadth in Building.

WE were struck the other day by the want of cohesion and breadth in much modern work, as shown in some recent council cottages whose red chimney stacks, blue roofs and light roughcast walls divided the work into three sharply contrasted divisions of colour, very disjointed and inharmonious.

Ancient Egyptian Art.

We referred last week to the absorbing interest of the Ancient Egyptian Art illustrated at the Burlington Fine Arts Club. As the exhibition will be open for some weeks our readers should find opportunity to see it. The four sketches we are able to give afford some indication of the fine quality of pottery and modelling thousands of years before Christ. The two amphoræ have just that strength of outline which one so appreciates in decorative pottery used in or about a building. They are of coarse aragonite, and are from a *cache* near the King's tomb in the Bibân el Mulûk; the handles of the larger one are in the form of conventional ibex heads, and on the face of both vases are cut the cartouches of Menetaph beneath a winged sun. These are lent by the Earl of Carnarvon. The globular vase in Case B is from the largest private collection of its kind, belonging to the Rev. Randolph Berens. It is of buff pottery speckled with red paint to imitate red brescia, and is directly imitated from the stone vases shown in Case P. The beautiful oriental alabaster comes from a place on the Nile called Alabastron, and indeed gives its name to the material: it is about 60 miles above Assiout. Mr. Berens has a magnificent large vase of that oriental alabaster which he was fortunate enough to buy in Cairo some years ago. The head of a lion is in aragonite and of the Saïte period (500 to 700 years B.C.). It is lent by Mr. Vernon Wethered,

GENERAL NEWS.

The Victory Scholarship.

A total of fifty competitors has entered for the Society of Architects' Victory Scholarship. The preliminary competition will be held on June 4, at three centres—London, Liverpool, and Glasgow. Twenty-one entrants will sit in London, seventeen in Liverpool, and twelve in Glasgow.

An Architect's Estate.

The late Mr. Thomas Taylor Wainwright, of The Old Hall, Sandfield Park, West Derby, and of Messrs. Thomas Wainwright & Sons, Union-court, Liverpool, architects and surveyors, who died on January 23, left estate of the value of £284,561, of which £276,768 is net personalty. Among other bequests, he left £1,500 to the Liverpool Cathedral Fund, and £500 to the Surveyors' Institution.

Wallingford War Memorial.

A war memorial, consisting of a square pedestal raised on steps, with bronze panels on the four sides, crowned by a bronze figure of Peace, holding a wreath of bay leaves in one hand and a scroll of honour in the other, was unveiled at Wallingford last week. The memorial was designed by Mr. Guy Dawber, F.R.I.B.A., and the figure was cast and modelled by Mr. George Alexander.

Biblical City to be Excavated.

Excavation of the Biblical city of Beth-Shan (Beisan) is to be undertaken next month by the University of Pennsylvania Museum (states *The Times*). The work will be under the direction of Mr. Clarence S. Fisher, Curator of the Egyptian Section of the Museum, who expects to unearth relics of seven or more cities, which successively stood on the same site, and of nine different civilizations.

Building Trade Wages.

The new scale of wages proposed by the National Wages and Conditions Council for the Building Industry, which came into force on May 16, has been accepted on a ballot by the members of the National Federation of Building Trade Operatives. The voting was: For acceptance, 26,299; against, 16,122. The ballot on the question of using the funds of the Federation for political purposes resulted as follows: In favour, 28,535; against, 17,863.

A War Memorial Avenue.

The Warwickshire memorial to the 29th Division was unveiled near Rugby on Empire Day. The memorial consists of the replanting of a portion of Dunchurch-avenue, which, stretching along the London and Holyhead-road from Woollscott-bridge to Knightlow-hill, a distance of six or seven miles, is a picturesque landmark. It was planted about 1740 by John, Duke of Montagu, known as John the Planter, but about three years ago the Duke of Buccleuch decided to cut down a large number of the trees which had become unsafe.

The British Engineers' Association.

At a meeting of the Council of the British Engineers' Association last week, Mr. Nevile Gwynne, late Chairman of the Executive Committee, was elected President of the Association, in place of the retiring President, Colonel O. C. Armstrong, D.S.O., who has occupied the position of President for three years and to whom a very hearty vote of thanks was accorded. Mr. E. W. Petter was elected Chairman of the Executive Committee in succession to Mr. Nevile Gwynne.

The Dome of St. Paul's.

The experiment of plumbing the dome of St. Paul's has just been carried out, with an apparatus specially constructed for the purpose, after an interval of more than eight years. Canon Alexander has informed *The Times* that as far as this particular method of investigation went the results were very reassuring. In the course of the original building the dome settled several inches towards the south-west and caused the unstable conditions which the present scheme of preservation of the fabric is intended to rectify. The plans on which the Cathedral Architect, Mr. Mervyn Macartney, is working have been examined and approved by the Society for the Protection of Ancient Buildings.

The Institution of Electrical Engineers: Proposed Charter.

At a special general meeting of the Institution of Electrical Engineers, to be held on May 31, a proposal will be submitted that the Institution should petition the Privy Council for a Charter of Incorporation. Now that the Institution of Electrical Engineers has a large membership and holds an important position it is felt that it should, if possible, be incorporated under a Royal Charter, thus obtaining a recognition of its usefulness to the state. Clause 15 of the draft Charter provides that Corporate Members of the Institution shall have the right to use the designation "Chartered Electrical Engineer."

An Architects' Cricket Match.

A cricket match is being arranged between the Society of Architects and the Architectural Association, to be played at Elstree on Friday, June 17, play commencing at 11 a.m. and ceasing at 6.30 p.m. Motor conveyances for players and spectators will leave the A.A. premises (34, Bedford-square, W.C.1) at 10 a.m. on the morning of the match. The inclusive charge for players and spectators will not exceed 10s., including luncheon and tea served in the pavilion and fares both ways. The Selection Committee of the Society of Architects (28, Bedford-square, W.C.1) wishes to hear from intending players, with particulars of their ability as cricketers, before June 2.

Fulham Palace Moat.

Mr. Ernest Law, lecturing at the Royal Institution last week on "The Architecture and Art of Hampton Court Palace," referred to the proposal to fill up the Fulham Palace moat, which was of great historical interest. The same act of vandalism, he said, was perpetrated at Hampton Court Palace 200 years ago by William III and Wren, who used it as a dumping ground for the rubbish of the palace. They filled up the moat, but fortunately, some twelve years ago, it was decided to excavate it and show the old bridge and the old wall, to which so much interest attached. The delusion that a moat was unhealthy should not prevail in these enlightened times. He did not believe it damaged anyone so long as there was a fair amount of concrete to prevent the water from percolating and oozing up through the brickwork. The idea that the existence of a moat was necessarily harmful was a delusion.

Smoke Abatement.

The Minister of Health announces that Lord Newton's Committee which is inquiring into the law with regard to the pollution of the air by smoke and other noxious vapours has nearly finished taking evidence, and is considering its final report. The Committee was originally appointed in 1914, but owing to the war its operations were suspended until January of last year. The Committee has examined a large number of witnesses, and much valuable work has been accomplished. An interim report was issued in June, 1920, recommending various smokeless methods of domestic heating, having special regard to the new houses being built under the Government housing scheme. In consequence of this report a memorandum was sent to all local authorities by the Ministry of Health drawing attention to the Committee's recommendations. The Minister attaches great importance from the point of view of public health to the work of Lord Newton's Committee, which is continuing its investigations.

COMPETITION NEWS.

Carnarvon.

For the Royal National Eisteddfod of Wales Heroes' Memorial Committee.—Designs for a memorial. (See our issue for May 20.)

Canadian Battlefields War Memorials.

The following architects and sculptors have been chosen for the final round of the Canadian Battlefields Memorials Competition: Messrs. Walter S. Allward, Toronto; Cecil Burgess, Ottawa; F. Chapman Clemesher, Regina; Charles S. Cobb, Toronto; Paul Domville and Lester B. Husband, Hamilton (jointly); Wilford A. and Clarence A. Gagnon, Montreal (jointly); G. W. Hill, Montreal; A. W. King, Montreal; F. Lessore, Toronto; R. T. Perry, Vancouver; Kenneth G. Rea, Montreal; S. D. Ritchie, Montreal; Duke W. Rowat, Toronto; Ramsay Traquair, Montreal; George E. Tremblay, Iberville, Quebec; J. Emile Vanier, Montreal; and P. R. Wilson, Montreal. They have now to prepare a half-inch model of a monument between 80 and 100 ft. high for one of the eight specified French or Belgian sites. The assessors in the competition are Monsieur Paul Cret; Mr. Frank Darling; and Professor C. H. Reilly, F.R.I.B.A. Professor Percy Nobbs acted as advisory architect to the Canadian Battlefields Commission in drawing up the original conditions.

Other Competitions.

Other competitions still open include Greenock war memorial (sending-in day August 1); Halifax war memorial (June 1); Salisbury war memorial (June 2); Cairo Hospital (October 3); Chesney water supply (June 10); Wolverhampton war memorial (August 13); Blackpool war memorial.

CHURCH OF ST. JAMES', NORLANDS: WAR MEMORIAL CHAPEL.

At the Church of St. James', Norlands, which is situated at Notting Hill, W., it was decided that the war memorial should take the form of a chapel, dedicated to Our Lady and St. George, in which should be kept a Book of Remembrance, containing the names of all parishioners who served in the war. A site was cleared for the chapel by the removal of the organ to the west end of the church from its former position on the north side of the chancel. The space thus cleared measured roughly 12 ft. square, with a mean height of 27 ft., two sides being external walls and the other two communicating by arches with the chancel and north aisle respectively.

The north side is treated with oak boarding, the beading of which is supplemented by mouldings which, in conjunction with flattened ogee arches worked on the top rail into which the boarding is housed, give the effect of a series of long vertical panels. The whole is surmounted by a capping, into which have been incorporated two carved oak panels, the work of a parishioner; the top member of the capping is treated with carved pateræ at intervals. The shelf for the Book of Remembrance is partially sunk in a niche, wherein use has been made of a small window low down on the north side; into the jambs of this window an oak panel has been fixed, forming the back of the niche. The niche will eventually be enclosed by a pair of glazed doors, richly treated with carving and tracery. An existing oak altar with its steps, dorsal and hangings, has been re-used, the dorsal, however, being surmounted by a new oak canopy.

Mr. Sherard J. H. Prynne, A.R.I.B.A., is the architect; the oak work throughout is by Messrs. G. and A. Brown, Ltd., of Hammersmith; and the builder's work is by Messrs. Uncles & Bricknell, of Notting Hill.

CORRESPONDENCE.

London Building Act, 1894: What is a Separate Building?

SIR,—Some district surveyors think that when any tenement or part of a building is entered separately from without, or, in other words, is separated from every other part thereof, it is a separate building for purposes of the above Act, and they require a party floor to be formed between it and any other part above or below it.

Section 5 (20) defines a party structure to mean "a party wall and also a partition floor or other structure, separating vertically or horizontally buildings, stories or rooms approached by distinct staircases or separate entrances from without," and Section 74 (1) provides that every building "shall be separated either by an external wall or by a party wall or other proper party structure from the adjoining building (if any) and from each of the adjoining buildings (if more than one)."

The first-named Section certainly suggests that buildings can be superimposed; but it is only a defining, not an enacting, clause, and I look in vain for any positive rule of the Act upon this point.

On the other hand, if separate tenements are regarded as separate buildings there are rules of the Act that cannot be applied. For example, Section 41 provides that every domestic building shall be provided with an open space in the rear "exclusively belonging to such building." Then, in the case of separate shops side by side under an hotel, these would be divided by party walls and the rule under Section 59 (1) that "every party wall shall be carried up . . . . above the roof, &c." would be difficult if not impossible of application.

I see the desirability of separate tenements being separated by party structures, but I cannot see that the Act requires this to be done.

GEORGE H. BLAGROVE.

Quantities and the Measure of Output in Building.

SIR,—Mr. T. Sumner Smith's reply, published in your issue for May 13, to my letter of the 6th inst., is not what I expected from a *confrère*. He starts off with a polite (?) reference to the depth of my study of the subject; he then quotes a statement from my letter (which I still adhere to), viz.: "In the first place, it is essential to state in all percentage problems what the percentage is *on*, otherwise confusion of thought is inevitable"; and then, as if to prove the truth of this statement, he tabulates three kinds of profit. If he knew, as he here shows he did, that there are three kinds of profit, why did he not make it clear in his problem which profit had to be found? If he had done that my letter would not have been written, and the solution of the problem would have been, in spite of what Mr. Smith thinks, a plain, straightforward arithmetical operation, and if to an elementary knowledge of arithmetic we add an elementary knowledge of book-keeping and algebra then we have all the accomplishments required to understand anything and everything that Mr. Smith has ever written on the subject. And that is all there is to that aspect of the matter. Unfortunately, there is one other.

Mr. Smith impugns the accuracy of my formulæ. Before I deal with these, let me first reply to his criticism of my use of the word "capital" in lieu of the words "capital expenditure." This is obviously an abbreviation, since the whole of my letter (except the last paragraph) deals with the one particular kind of capital, so that I fail to see the necessity for his parenthetical observation. Then, again, he says: "A problem is not expressed *by* a formula, &c." My words are: "The problem can be briefly expressed *as* a formula." The definition of a mathematical formula given in Webster's International Dictionary is as follows: "Any general fact, rule, or principle expressed in algebraic symbols, as, the binomial formula."

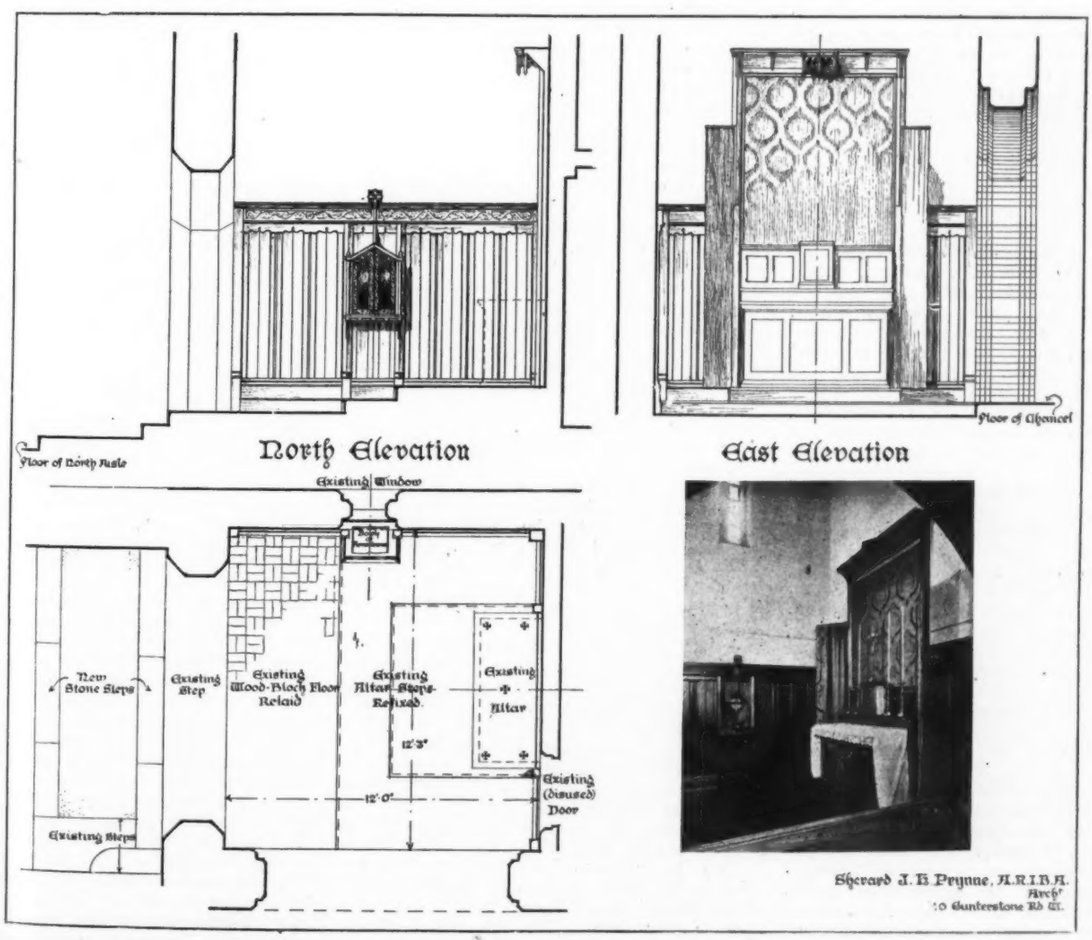
Now we come to the formulæ by means of which Mr. Sumner Smith professes to prove that I do not understand arithmetic. In fact, he appears to delight in harping on my paucity of understanding of matters arithmetical. This is how he proves it—he takes my first formula, $\frac{C}{T} = \frac{t_1}{c_1}$, and states it does not solve the problem. He then takes my second formula, $C = \frac{T}{1+c_1}$, and alters the plus sign to a multiplication sign* and patronisingly informs me that: "I ought to have been very careful to state it correctly thus: $C = \frac{1 \times T}{1 \times c_1}$."

My reply to the above is that he is utterly and completely wrong from beginning to end, and that had he the smallest knowledge of algebra he would never have perpetrated the absurdity of multiplying an algebraic symbol by 1.

If Mr. T. Sumner Smith is still in doubt as to the accuracy of my formulæ, then I will, if he wishes, demonstrate that they are correct in every particular and *can* be used for the purpose indicated.

W. PARRY-JONES.

[* As will be seen by Mr. Sumner Smith's letter in our last issue, this was a printer's error.—ED.]



War Memorial, Church of St. James', Norlands. MR. SHEPPARD J. H. PRYNNE, A.R.I.B.A., Architect. (*See p.* 674.)

MR. GEORGE HUBBARD occupied the chair at a general meeting of the Royal Institute of British Architects, held at No. 9, Conduit-street, W.1, on Monday last.

Obituary.

After the minutes of the previous meeting had been passed, Mr. ARTHUR KEEN (Hon. Secretary) announced the decease of Mr. H. W. Walker (Associate), of Colombo, Mr. Morley Pope (Licentiate), of Montreal, and Mr. Martin Nyrop, of Copenhagen (Honorary Corresponding Member of the Royal Institute). A motion was passed that an expression of the regret of the Institute at the loss of these members be entered on the minutes.

THE DESIGN OF THE PICTURE THEATRE.

MR. ROBERT ATKINSON then read a paper, entitled "Design of the Picture Theatre," in the course of which he said the picture theatre introduced new features into theatre design, but not sufficiently radical to submerge the traditional theatre. Whilst, in the ordinary theatre, the seating must be concentrated to within the limits of carry of the spoken word, the picture theatre was limited only by the power of vision of the public, and conversely to the ordinary theatre the nearer seats were not of such great value as those farther removed. Again, the eighteenth-century theatre scored, because the ranges of boxes were sufficiently removed to give the best *tout ensemble* of the scene, whilst the modern theatre boxes and nearer seats were defective in every respect; so really the picture theatre returned to the older traditions and placed its best seats some little distance from the scene. The most serious limitation of the picture theatre was the risk of distortion from angle views on to a flat screen, and again the early traditional fan-shaped theatre met the difficulty by placing the fewest possible seats outside a reasonable angle of vision. The limit of depth of a picture theatre was only regulated by the vision of the audience, and it was an open question whether already in the larger theatres in America that had not been overstepped.

PLANNING.—The planning of the picture house revolved very largely about the projection of the picture on the screen, and which was combined with good vision or sighting for the body of the auditorium, and good exits in case of emergency, &c. Where the site was cheap and sufficiently ample a one-story theatre was the most economical up to a seating capacity of 1,500 persons, but for expensive sites and for large capacities a double-storied theatre became essential; roughly, by introducing a balcony, the seating could be doubled; thus a 3,000 theatre could be made to accommodate 1,500 on the auditorium floor and 1,500 in the balcony. Three-tier theatres, the usual type for the normal theatre, were very difficult to work as picture theatres; not only was the projection seriously elevated if the projection was from the top, but it gave distorted views of the screen from the top balcony and the stage setting had to be correspondingly elevated to secure good vision. Actually, given the same area the two-tier theatre could be planned to accommodate an equal number of spectators. To plan logically the demand for the greatest possible number of seats at some little distance, say, 50 or 60 ft. from the screen, and yet not too far removed (120 ft.), pointed to the fan-shaped theatre as being the most suitable; not only did it provide the maximum good seats, but it eliminated the bad near-side seats. In section, too, the converging sight lines suggested the conical outline, a return to the Roman vallerum in principle. Again, the acoustical properties of the cone were as near perfect as possible, giving (1) a confinement of volume in a given direction; (2) an elimination of reverberation owing to the side walls being more or less coincident with the line of sound expansion; and (3) if the sound volume exhausted itself at about the extent of the depth of the auditorium (100 to 120 ft. from the source) an echo was practically impossible. Where halls were shorter than this distance the rear walls should be padded as sound chambers, and if the hall was large the side walls and ceiling should be hollow so as to increase the consonance. A dome, however flat, reflected sound waves towards a focus, and so caused an anti-climax of more or less intensity. Apart from capacity and shape, the question of seating and sighting lines was of paramount importance.

SIGHTING LINES.—Sighting lines were usually so arranged that each person had a clear view of the bottom of the picture, obtained by sloping the floor or stepping the balcony, as the case might be, so that the vision line was 3 in. above the vision line of the seat in front. This, with the possibility of staging the seats, gave a clearance of 6 in. between alternate rows of seats. Where the theatre had a balcony, the top of the picture should be visible from the rear seats under the balcony. A complication of sighting lines had been introduced recently in the larger theatres, where an orchestra of anything from forty to sixty performers played a great part in the entertainment, and staging after the manner of concert platforms had to be introduced to accommodate them. These, too, must be within the vision of the entire house, so that the sighting lines must be lowered to give a clear view. A third complication, but not presenting any difficulty in sighting, was the introduction of a more or less large stage for the finer setting of the picture, and incidentally for special concert turns between the pictures, or for the setting of tableaux supplementary to the more important pictures themselves.

SEATING.—The seating was usually spaced 2 ft. 6 in. by 1 ft. 6 in. in the cheaper seats, with a gradual increase in spacing up to 3 ft. by 2 ft. in the best seats. No seating should be nearer the picture than the length of the screen; in other words, an angle of 60 deg. for each extremity of the screen would give the line of the first seat, and an angle of 120 deg. would give the angle of the extremity of seating to right and left. Gangways, not more than 14 seats apart, should be not less than 3 ft. 6 in. wide, and should gradually widen towards the exits or entrances. For boxes, the seats might be movable and more generous in size. Side-boxes were not desirable, and the space usually given up to the stage-box was in American theatres employed for an organ, which was often in two halves and controlled from the orchestra. The seating usually radiated to a point in the rear of the picture, and the balcony followed the same curve.

PROJECTION.—Projection was really the crux of the theatre planning. It was best to lay down the projection and to build the theatre round it. The projection might be very easily worked from the back of the theatre in a building without a balcony, but became increasingly difficult where one or two balconies were introduced, because of the angle of projection, which resulted in either a tilted screen or a distorted picture, or both. Where the angle became steep (say, 15 deg. from the horizontal) it was a question whether a better method of projection might not be secured by projecting from under the balcony, or from a booth in the thickness of the balcony. The ideal projection was the perfectly level throw, and this could be secured by these latter means, with, however, some risk of vibration in the balcony type of projection, but in a large theatre this was probably negligible, and had the advantage of a short throw. The length of projection and the size of the picture were other difficulties; the length of the projection should not exceed 100 ft., but up to 150 ft. had been done, and the picture would vary in size with the theatre itself, but as a rule any picture which appeared to be over life-size from the back of the auditorium was too big, and *vice versa*. A 12 ft. picture was usually considered life-size, and unless in a very small room should not be smaller.

	Throw.		Throw.
12 ft...	.. 50 ft.	21 ft.	.. 125 ft.
15 ft...	.. 75 ft.	24 ft...	.. 150 ft.
18 ft...	.. 100 ft.		

The screen itself was better of solid plaster distempered white, and not of too smooth a surface (which reflected too sharply). Rear projection had been tried, but was not considered as good as front projection, although it had certain advantages; for instance, the shortness of throw, and the dead level projection. The screen in this case was of ground plate-glass, and the throw should be 50 ft. or over.

SIZE OF THEATRES.—The auditorium of a theatre to seat 1,000 on one floor would need to be approximately 80 ft. by 120 ft., and for 1,500 people 120 ft. by 150 ft.; with balconies, these figures could be doubled. Outside this a space in proportion for entrances, lobby, resting room, &c., would be required. Sites should, of course, have at least two outside walls to streets, and where the capacity was 2,000 persons or over isolated sites should be selected or allowance made for lateral open spaces on the ground itself. The one-story theatre was essentially the cheapest, both to construct and to ventilate and to run. A very ingenious section adopted in America enabled every inch of site to be utilised as seating room by placing the entrances under the higher part of the raked floor, and leading into the seats by tunnels after the fashion of a modified amphitheatre. Such a theatre was easily emptied in case of emergency, need not be high internally, and even provided spaces for shops on the exterior walls under the seating. The two-story theatre immediately introduced complications in planning which the one-story theatre was free from—exit stairs, balcony constructions, &c.—and was even more complicated in the three-story theatre.

BALCONY DESIGN.—Balcony design had been radically changed, and instead of the restricting columns or timid cantilever construction of the theatre of the past century were now designed to carry 1,000 to 1,500 persons on anything from 12 to 20 rows of seats, as well as probably a row of *loges* surrounding the outer rim of the balcony curve. Such a structure projecting 50 to 100 ft., and rising at an angle of 30 deg. to 40 deg., presented a problem which outweighed anything else in theatre design. Usually, such a balcony was fed at two or more levels through its thickness in the manner of the seats in an amphitheatre, and the large spaces left were utilised as retiring rooms, smoking rooms and lounges. Very frequently a large portion of the lower ceiling was omitted and great play made of mezzanines and wells visible from the auditorium itself, thus certainly improving the value of the rear seats and helping ventilation. These great balconies were built only partially on the cantilever principle. A great lattice girder 10 or 12 ft. deep was first placed at the nearest point to the front of the bacony which would provide sufficient depth. The cross beams were then placed running forward as cantilevers to the front edge. Through the spaces of this great lattice girder the tunnels feeding the seats had sufficient headroom to pass. This was certainly the most economical form of gallery construction, and, compared with the huge cantilevers which it replaced, was very simple.

EXITS.—Exits to a theatre should be exceedingly generous, and certain American theatre were object-lessons in this respect, the entire rear walls being opened out as exits. It was

usually by the familiar way that people would endeavour to escape in case of panic, and for this reason entrances should be very ample and extra exits provided into side streets as near as possible, and certainly visible from the usual way out. Stairs should lead from each floor entirely uninterrupted by cross passages or by secondary converging streams of people from another level. In American theatres the escape stairs were generally of iron, suspended outside the main walls of the building, and were fed at several different levels without increasing perceptibly in width, a method which enabled valuable sites to be fully utilised, but which was very unsatisfactory. Another method which had been tried in California was for all the entrances and main exits to be by ramps, certainly very good but expensive as to the area occupied.

FEEDING THE THEATRE.—Entrance should be allowed only in the short intervals between the pictures, and in this arose the necessity for large waiting spaces outside the theatre proper, but beyond the entrances and the pay-boxes; for instance, a theatre seating 2,000 might discharge 500 people after a particular picture, and these seats, unless immediately refilled, stood idle until the next interval. It was obviously impossible to book sufficiently rapidly to fill this void in the two or three minutes' interval, so generous queuing spaces must be provided.

DECORATIVE EFFECTS.—The theatre internally needed very special powers of design; no preconceived ideas of symmetrical elevations were of any value. The design must build up from the plan and in visual effect concentrate on the proscenium opening, then gradually be reduced in value backwards. A symmetrical ceiling, circular or square, was nearly always an impossibility, and could never be seen except, perhaps, from a few seats at the rear of the balcony. Likewise, the flanking walls, cut up as they were by sloping floors and balconies, provided only, as a rule, a comparatively small space near the proscenium where any unrestricted wall space was available. These might be treated in a large way as a return and support to the proscenium, but the rest of the rear spaces were best left as a foil to the richness concentrated around the focal point. Some buildings showed an opening surrounded by several stories of what might be an office building; others were adaptations of Italian palaces, and one of the latest was frankly a Greek Doric frontispiece standing on a glass valance. However, amongst the better designed small theatres, a type of front was being evolved which expressed very rationally and artistically the building and its purpose. No doubt before long, as the process of evolution progressed, the picture theatre would be a thing of beauty, and equal in standing to anything designed for other purposes.

The lecture was illustrated by a number of lantern slides, showing plans, sections, and elevations of some recent American picture theatres, and some paintings designed for the decoration of cinemas by the Lecturer were on exhibition.

Discussion.

MR. A. E. NEWBOULD, M.P., in proposing a vote of thanks to the Lecturer, said in 1914 the cinema theatres in this country were at least equal to those in America, but owing to the war restrictions it had been impossible to develop the buildings until now, and even now the cost of building was almost prohibitive. During the past seven years America had made rapid strides in cinema design, while progress in this country had been at a standstill. When the cost of building was more reasonable and the entertainment taxes removed he thought America would be rapidly caught up again. He was sure some of the cinema theatres already designed and in course of construction in this country would be equal to anything in America. He thought the theatre at Brighton, which was being built for the firm with which he was connected, to the design of Mr. Atkinson, would be one of the finest examples of cinema design and planning in the world.

MAJOR R. GRIERSON (Provincial Cinematograph Theatres, Ltd.) seconded the vote of thanks, and said the restrictions on "luxury" building stopped the English architects from showing what they could do in the way of cinema design. He did not think there was any doubt that the new cinema at Brighton would prove that England led the world in cinema design, owing to the way Mr. Atkinson had carried out the work.

MR. WALTER BAYES said he felt strongly that the tremendous development of the picture theatre should in justice bring to the painter a certain return in the relation of painting to architecture. The cinema had already robbed the painter of the very name of his productions, for "picture" no longer meant painting—it meant the cinematograph. Formerly the architect was a sort of a compound of an engineer and a sculptor, because buildings were constructed of stone; now, when buildings were made of steel, concrete, or other material, and stone was more abstract than it used to be, it appeared that the architect might become a compound of a painter and an engineer. The art of the painter was essentially a more abstract art than that of the sculptor, and it seemed that it might find another opening in the decoration of cinemas. The picture theatre had cut out the painter completely, but the human mind was so constituted that no sooner was it given what it thought it most desired than it recoiled in the opposite direction. At present a picture that did not move had but little interest, but sooner or later people would be more pleased to see something that did not move.

MR. MAX CLARKE said the greater portion of his life had been spent in designing theatres. He did not observe that the Lecturer had differentiated between a theatre and a picture house, but he did not think the two classes of building could be considered as being the same. A great many of the picture houses shown on the screen seemed to be theatres, and not picture houses at all. Almost every one of them incorporated a stage, which was absolutely useless so far as a picture house was concerned, and he was unable to tell if they were designed as theatres or as picture houses. Mr. Atkinson had said that a picture could not be projected with satisfactory results more than 100 ft., and if that were so it would have a big influence on the design of the large picture houses that were now being erected. The projection of the pictures on to the screen from the rear was also a question that would have to be investigated. He had been told that a very good picture could be obtained with a projection of only 10 ft., but it occurred to him that the position of the operator's room which would be necessitated by such a short projection would not be allowed, at any rate in London. Apparently there would in such a case be no means of escape for the operator at the rear in case of fire, and the fire and smoke from the operator's room would be emitted direct into the auditorium. He thought somewhere between the balconies would be the best place for the lantern, as when it was placed very high up the picture was distorted on the screen, but he did not think the London County Council would approve of that position. The Lecturer had disapproved of an emergency staircase placed outside the wall at the side of a theatre, but in his opinion it did not matter where the escape was placed so long as adequate means of escape in case of fire was provided. If there was no other place available for the staircase it should be placed outside. The loss of life at the Exeter Theatre fire a short time ago was caused solely by a pay-box, which was not in the original design, being placed on the staircase. The first attempt he knew of Pompeian decoration in a theatre was at the Lyceum Theatre, London, and in the opinion of Henry Irving it was a great improvement on theatre decoration generally. That type of decoration cost six or seven times as much as the ordinary kind of painted decoration.

MR. S. P. DERBYSHIRE said the most important part of cinema design was the planning, not only in plan but in section. The whole of the planning of a picture theatre was hinged on the screen and the projector; the first essential was to make the building fit for its purpose.

MAJOR R. GRIERSON said the only difference between an ordinary theatre and a picture theatre was that whereas an ordinary theatre dealt with three dimensions the picture theatre really only dealt with two dimensions—width and length.

Replying to the points raised in the discussion, the LECTURER said he thought the architect should design buildings which were both good architecture and cheap. The architect was useless unless he could design a building that could be worked economically, and unless a building fulfilled its purpose in every respect it might as well not be built. The planning and decoration of a building was a complete unit which grew out of the purpose for which a building was to be used, and if the decoration was designed on a scale that would cost more than the owner was prepared to pay the building was badly planned also. He advised cheaper building, and did not think decoration was any the worse for being cheap. He thought the architect had a great deal to learn in giving building owners and business men what they wanted.

The vote of thanks was carried with acclamation.

[The Regent Picture House, Brighton, by Mr. Robert Atkinson, referred to in the above discussion, is illustrated on p. 680.]

At the conclusion of the proceedings, the HONORARY SECRETARY made the following announcements:—

Election of Officers and Council.

The next meeting will be held on June 6, for the report of the scrutineers on the election of the Officers, Members of Council and Standing Committees for the ensuing session, and for the election of members.

Honorary Associates.

This meeting will be preceded by a special general meeting summoned by the Council, when the Chairman will move that the annual subscriptions and entrance fees of Honorary Associates of the Institute be abolished.

Testing Materials.

The meeting will be followed by a demonstration of a machine for testing steel and other materials.

Annual Conference.

The annual conference of the Institute will be held at Liverpool on June 25, when papers will be read and visits paid to places of interest in the neighbourhood; there will also be an exhibition of architectural drawings.

Garden Party.

A reception and garden party will be held at the Zoological Gardens on June 28.

The Royal Archæological Institute.

A joint summer meeting of the Royal Archæological Institute and the Bristol and Gloucestershire Archæological Society is to be held at Gloucester from July 11 to July 16 this year. The preliminary programme is as follows:—July 11: Annual general meetings of the two bodies, visit to the choir of Gloucester Cathedral, and reception by the Mayor of Gloucester; July 12: Visits to Deerhurst Church, Tewkesbury Abbey, and Bredon Church, and lecture on "Gloucester Cathedral Tower"; July 13: Visits to Avening Church, Tetbury, Chavenage House, Doughton House, Uley Camp, and Owlpen Manor, and lecture on "St. Oswald's Priory and the Archbishops of York"; July 14: Visits to the Roman villa at Chedworth, the Coln Valley, and Burford, and lecture on "Westgate Bridge and Gloucester Castle"; July 15: Visits to Flaxley Abbey, the Roman road at Blackpool Bridge, Speech House, and St. Briavels Castle, and lecture on "Preservation of Ancient Glass"; July 16: Visits to Gloucester Cathedral and other places of interest in Gloucester. Further particulars and tickets may be obtained from the Honorary Secretary of the meeting, Mr. Roland Austin, 38, Brunswick-road Gloucester.

ARCHITECTURAL HERESIES OF A PAINTER.

The third of the series of public lectures organised by the Literature Standing Committee of the Royal Institute of British Architects was delivered at 9, Conduit-street, W. 1, on Thursday last week, by Mr. Roger E. Fry, entitled "Architectural Heresies of a Painter." The chair was occupied by Mr. Charles J. Holmes, Director of the National Gallery.

The lecturer said his audience would probably agree with him that all was not well with modern architecture, and he would like them to know how it appeared to an outsider. His heresies were ten in number, as follows:—

(1) The art of dressing buildings according to the fashion had been substituted for the art of architecture.

(2) That phenomenon was more or less worldwide. In the false architecture of modern Europe the English was distinguished by its lack of the sense of scale.

(3) It was sometimes distinguished also by its good taste, in the sense that good taste was a social rather than an æsthetic virtue.

(4) There were two possible kinds of beauty in a building, (*a*) what he called natural beauty, which was also the beauty of a locomotive or a panther; and (*b*) æsthetic beauty, which resulted from the clear expression of an idea. It had been so arranged that neither of those beauties occurred in our buildings.

(5) Æsthetic beauty in a building was essentially the same as that of sculpture, in that it resulted from the expression of a plastic idea. There had hardly ever been an æsthetic architecture in England, and there had been even less sculpture.

(6) Our architecture did not express plastic ideas, but historico-social ideas.

(7) Architecture was founded upon social snobbery.

(8) The vices of modern English architecture had almost always been inherent in the architecture of England; modern conditions had brought out the rash.

(9) Modern conditions and modern science had put into the hands of architects the greatest opportunity in the history of the world—and they had missed it completely.

(10) To a great extent that was not their fault.

What a list! But honestly he did not see how he could make it shorter, and he hoped by amplifying his theses to mitigate and soften their abruptness.

Turning to his first heresy, people were almost always pleased with fashionable dress, because the forms of fashion were never regarded intrinsically but always according to their social implications. The same thing was noticeable in modern architecture; buildings which attracted by a certain air of piquant novelty when they were first built became *démodé* in a few years, and, like the clothes of last year, when they were dowdy they were done for. At one time St. John's Wood-avenue seemed an epoch-making discovery—baronial splendour was at last compressed into the limits of suburban convenience. There was the *coquetterie* of the so-called Queen Anne. But where were the fashions of yester-year? At first some novelty of so-called type, which was really the reference to some past epoch that had not been recently exploited, had an air of *chic*—it aroused a faint curiosity, and suggested social alertness. But, exactly as fashions were instantly copied by each successively lower social level, so a new style of building, having started its career in the smart world, gradually descended to lower and lower social depths. Sham and very ornate Perpendicular long ago was modish, but the last he saw of it was in shops in Bloomsbury, which were socially negligible. Real style was, he took it, the perfect adaptation of the means of expression to the idea. It resulted from ease of expression, and, as it was understood in modern architecture, was essentially a social symbolism. The copying of periods and styles was fatal to creative effort, and implied that beauty was something material, absolute, fixed, and determined, whereas in fact it was a relative quality which was inherent in the forms of the object of art only in so far as it was an evident sign of an inward spiritual state on the part of the artist. That was why nothing was so unlike an original as a copy of it, since the copy was inevitably the expression of a totally different spiritual condition. But a copy of an original work of art by an artist, though it might be entirely unlike the original, might have great æsthetic value provided the artist remained an artist and did not become a copyist. It was quite possible for an artist to assimilate the principle of a past style, so as to be able really to create entirely new whilst using similar forms. But he must get at the underlying principles and not merely learn by heart the external evidence of those principles. What was one to say about the incredible museum of particles that made up most of modern London? Where the client and the architect were sufficiently smart the translation into whatever language might be chosen was, he granted, fairly scholarly, but the more "original" adaptations were a jargon, a patchwork of odd phrases picked up here and there and stuck together anyhow as the hazard of momentary convenience suggested.

Referring to his second heresy, he said the French had not perhaps played such wild chromatic scales up and down the archæological keyboard as we had, but their adaptations of styles had often been grotesque and extravagant. They had had a stylish advantage in sticking a little more closely to a narrower range of tradition. On the other hand, they had developed the cruel efficiency, the hard, brittle *chic* of the Ecole des Beaux-Arts, an instrument perfectly adapted to replace inspiration and sensibiiity by brilliantly self-confident mediocrity.

In regard to the third heresy, he sought amid the grotesque welter of modern European architecture for the peculiar characteristics of our own brand, and found it in two things: (1) the absence of the sense of scale, and (2) the presence of a certain kind of good taste. The English seemed incapable in their architecture of a free and generous gesture; they cramped and skimped and cowered; they were weak, timid and meticulous. They invented, alas! the "cosy corner," and the "cosy corner," in one form or another, marked most of the buildings. In the realm of the imaginative form, this great, imperial, adventurous race appeared as burrowing, furtive, obliterated creatures. The other distinction of the national architecture was its occasional good taste. But it was a negative good taste, which consisted in not making mistakes of grammar, in not being dowdy, slack and unscholarly.

With regard to heresy No. 4, there were two kinds of beauty in building—natural beauty and æsthetic beauty. We had arranged so that we had neither. Natural beauty resulted from perfectly adapted mechanism. In the many ferro-concrete buildings now being built almost always the essential logic of adaptation was fumbled and covered over with architectural features; never a straightforward, logical emphasis, but plenty of tasteful reminiscences of this, that or the other period towards which our incurable archæological snobbery turned with abject reverence until the word went round that they were worshipping yesterday's shrine and ought to be hurrying up for fear they would be found on the wrong social landing.

Æsthetic beauty in a building, referred to in heresy No. 5, resulted from the expression of a plastic idea. The expression of a plastic idea was very rare in architecture, and almost unknown in sculpture. By the plastic idea he meant such a construction of three dimensional shapes as satisfied the contemplation of their relations to one another and to the whole construction. An architect's choice of plastic forms was limited by practical conditions, but he generally had at his disposal the rectangular block, the cylinder, the hemisphere, the pyramid, the prism, and sections of these forms. The perfectly lucid expression of most of these forms on a considerable scale had a certain effect on the imagination, as, for example, the Pyramids, the large cylindrical grain stores, gasometers, and the sheer, undisturbed rectangular mass of a factory. It was when such forms and their plastic arrangement were devised in relation to the earth's surface that the essentially æsthetic qualities of architecture were obtained. Such plastic expressions gave him intense and vivid pleasure, but he was rarely able to indulge in it in London. He did not think most modern architects, pre-occupied as they were with architectural costume and the ingenious application of various kinds of styles, ever made much of the possible play of those elementary plastic forms. Thinking, as he believed they too often did, in terms of façades, they failed to realise that what might diversify and give relief to a façade might actually obscure or obliterate the plasticity of the whole mass.

The statement that our architecture expressed historico-social ideas and that it was founded on snobbery (heresies Nos. 6 and 7) was rather a disagreeable way of stating the inevitable fact that architecture was pre-eminently a social art, for snobbery was only an ugly word for one aspect of the herd instinct in man.

The vices of modern architecture (heresy No. 8) had always been more or less inherent in architectural tradition, but had only come into prominence with modern conditions. The essence of Gothic architecture was the purely engineering discovery of how to build a stone greenhouse; all its forms were dictated by the structural necessities that implied, but the early English architects used their forms as fashionable ornaments. They continued to pierce wall surfaces instead of building with glass walls. The same thing happened with the Renaissance; the new fashion of mouldings and ornaments was used for a long time before there was a frank acceptance of them as expressions of a changed fundamental idea.

With regard to heresy No. 9, he could not help wondering why so violent a stimulus as that given by new constructional possibilities in architecture had led to so disappointing a result. Think of how great an impetus to æsthetic invention was given in Romanesque and early Gothic times by the working out of the problems of stone vault construction. Then new forms were invented to express and embody each structural advance, whereas it seemed that in modern architecture new constructional possibilities were accepted slowly and with a kind of grudging reluctance. Instead of inspiring the invention of new and appropriate plastic forms, the new methods seemed to be slurred over and lost beneath the old stylistic conventions. He missed the enterprise, the experimental courage, the *élan*, which the immense possibilities of modern building methods might have inspired.

That it was not all the architect's fault (heresy No. 10) was, he thought, the result of circumstances. Architecture was a social and not an individualistic art, and it required for its realisation the agreement of a group of people. He must come to terms with a client who might be ignorant of architecture and who would probably have some social vanity he wished to have embodied in his building. Art as a social institution was built on snobbery, and was needed by mankind as a symbolic currency of social aspirations and values. Æsthetic feeling in the mass of mankind was so feeble compared with the vehemence of the social instinct that the ordinary man accepted whatever society proposed for his admiration.

Royal Fusiliers' War Memorial.

The design of Mr. Albert Toft has been selected by the Executive Committee of the Royal Fusiliers' War Memorial, to be erected in Hounslow Barracks. The figure will be in bronze. The names of all Royal Fusilier Battalions which existed during the war will appear on the pedestal, which is 25 ft. high.

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ILLUSTRATIONS.

Copthorne Sanatorium.

The Insurance Act of 1911 provided *inter alia* for the erection of sanatoria for the community at large, but only a few large sanatoria were completed before the war, and this delayed any extensive application of the Act. In particular, no public provision had been made for London patients, but three sites had been provided for them; one in Hampshire, one near Godalming, and a third near East Grinstead. That known as Highdown, near Godalming, is in a forward state, and it is hoped it will be finished by about the end of this year.

The Copthorne Sanatorium at East Grinstead, illustrated this week, is designed for 300 patients. Its site is part of 350 acres, on a high plateau 60 ft. above the main road with beautiful prospects in all directions. The plan is unique. The problem was to spread out the buildings without placing any too far from the Administration.

The scheme shows the Administration in the centre, with offices, examination rooms and quarters for three Assistant Medical Officers. On the east and west are groups of four radial pavilions, each arm containing 32 patients in one, two, four, and eight-bed wards, with cloak-rooms and sanitary conveniences attached. In the centre of the four arms are two day-rooms for the whole. Patients can pass under cover through open corridors to the dining hall and Administration. These pavilions are one-storied, to be built of ferro-concrete on rafts of the same material, and every ward faces south, south-east or south-west.

The hospital block for bed cases is to the south, and, like all other administrative blocks, is of brickwork and two-storied. It contains forty-four beds. The dining halls, kitchen and stores are north of the centre. The patients' hall is 97 ft. 6 in. by 27 ft., with a barrel-vaulted ceiling. There are separate halls for nurses and maids. The main kitchen, 53 ft. by 22 ft., is of one story in the centre. The stores and larders are adjacent. The maids' bedrooms are in the wings of this building. The Nurses' Home is to the west, the recreation hall and chapel combined to the east. The power station is to the extreme north, and contains boilers, engines for generating electricity, disinfector, mortuary block with chapel, motor house, etc. On the southern slope of the hill is the Medical Superintendent's house, and on the main road are a gate lodge and six cottages for married employees. The erection has been stopped by the Government owing to the financial stress, but it is hoped it may soon be proceeded with.

The architects are Messrs. Edwin T. Hall, F.R.I.B.A., F.R.San.I., and E. Stanley Hall, M.A., F.R.I.B.A., of 54, Bedford-square, London, W.C. 1.

The Capitol Theatre, Detroit.

We also illustrate the Capitol Cinema Theatre, Detroit, for which Mr. C. Howard Crane is the architect.

Cinema at Brighton.

On page 680 we illustrate a cinema at Brighton, for which Mr. Robert Atkinson, F.R.I.B.A., is the architect. A paper on cinema design, read by Mr. Atkinson at the Royal Institute of British Architects on Monday last, is reported on page 676.

Carnforth Picture House.

This cinema building was opened recently at Carnforth, an important railway junction about six miles from Lancaster. The hall, with balcony, has seating accommodation for about 530, and is fitted with tip-up seats throughout. The structure has been carried out and finished on economical lines, owing to the high cost of building at the present time. The interior has a flat-panelled ceiling, following the roof construction, and the walls are also finished with large panels subdivided on the same lines with plain dado. The front is in stone-coloured terra-cotta, and has been adapted from material made for a much larger structure on a different site which was abandoned. It is hoped at some future time that premises will be built flanking each side, and this would add much to its interest.

The electric current required is obtained from a gas engine plant in the basement. This plant was supplied by the National Gas Engine Co., Ashton-under-Lyne; the terra-cotta is by the Bispham Hall Colliery Co.; the heating is by Messrs. Saunders and Taylor, of Manchester. The general contractors were Messrs. R. Thompson & Morris, of Lancaster.

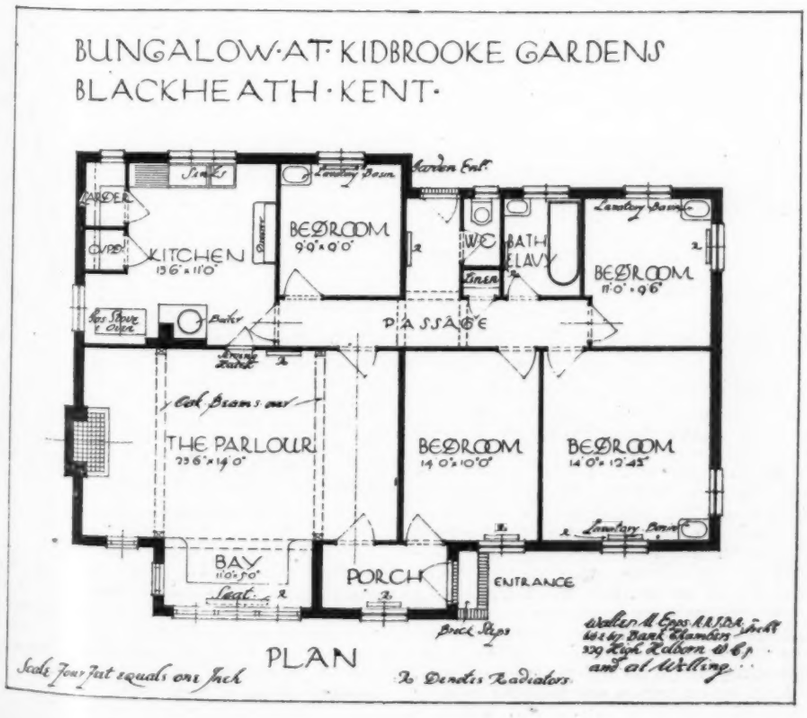
Mr. C. B. Pearson, F.R.I.B.A., of Lancaster, is the architect. The perspective drawing is in this year's R.A. Exhibition.

Bungalow at Blackheath.

This bungalow, now nearing completion, at Kidbrooke-gardens, Blackheath, Kent, has been erected on a pleasant site, with a south aspect, near the heath. The accommodation comprises a large parlour or living-room, four bedrooms, kitchen, larder, offices, etc., the coals and garden store being in a separate building. The parlour has an open fireplace built in multi-coloured 2 in. sand-faced bricks with wide flush joints, but the chief source of heating is by radiators. Three of the bedrooms have fixed lavatory basins with tile surrounds.

The materials used are 9 in. brickwork in cement mortar for external walls, finished with a cream-coloured roughcast; 4½ in. brick and 3 in. slabs for internal walls, plastered both sides; the roof is covered with grey-green Portmadoc slates. Messrs. Crittalls' steel casements are used throughout, without wood frames (except in the parlour). The outside window sills are two courses of sand-faced tiles, the lower course having a continuous nib, forming a drip, and internally red quarry tiles take the place of the usual window boards. The cedar indicated in the sketch is an actual fact, and the house groups comfortably under the wide-flung branches.

Mr. Walter M. Epps, A.R.I.B.A., 616 and 617, Bank Chambers, 329, High Holborn, W.C.1, is the architect, and the work has been carried out by Mr. W. H. Gomer, of Blackheath.



Farningham Soldiers' Club.

The Farningham Soldiers' Club, illustrated on pp. 687 and 688, has been planned as a small hall for village recreation and social purposes, and economy has been essential. The walls are specified to be of local brick, whitewashed, and the roof to be covered with asbestos tiles. The removable panel over the entrance door is to enable a cinematograph to be installed. The estimated cost is £2,000.

Messrs. Hepworth & Wornum, A.A.R.I.B.A., are the architects.

MEETINGS.

FRIDAY, *May* 27.

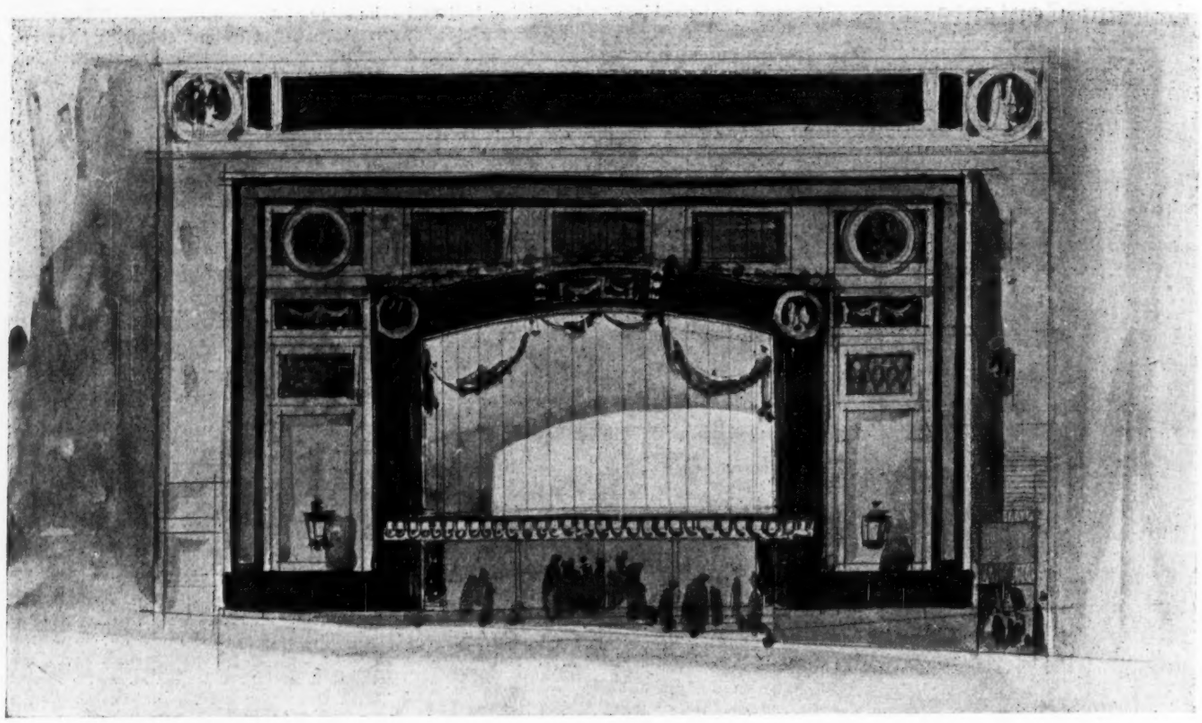
Town-Planning Institute.—Mr. G. L. Pepler on "Some Town-Planning Problems." At 92, Victoria-street, S.W.1. 6 p.m.

MONDAY, *May* 30.

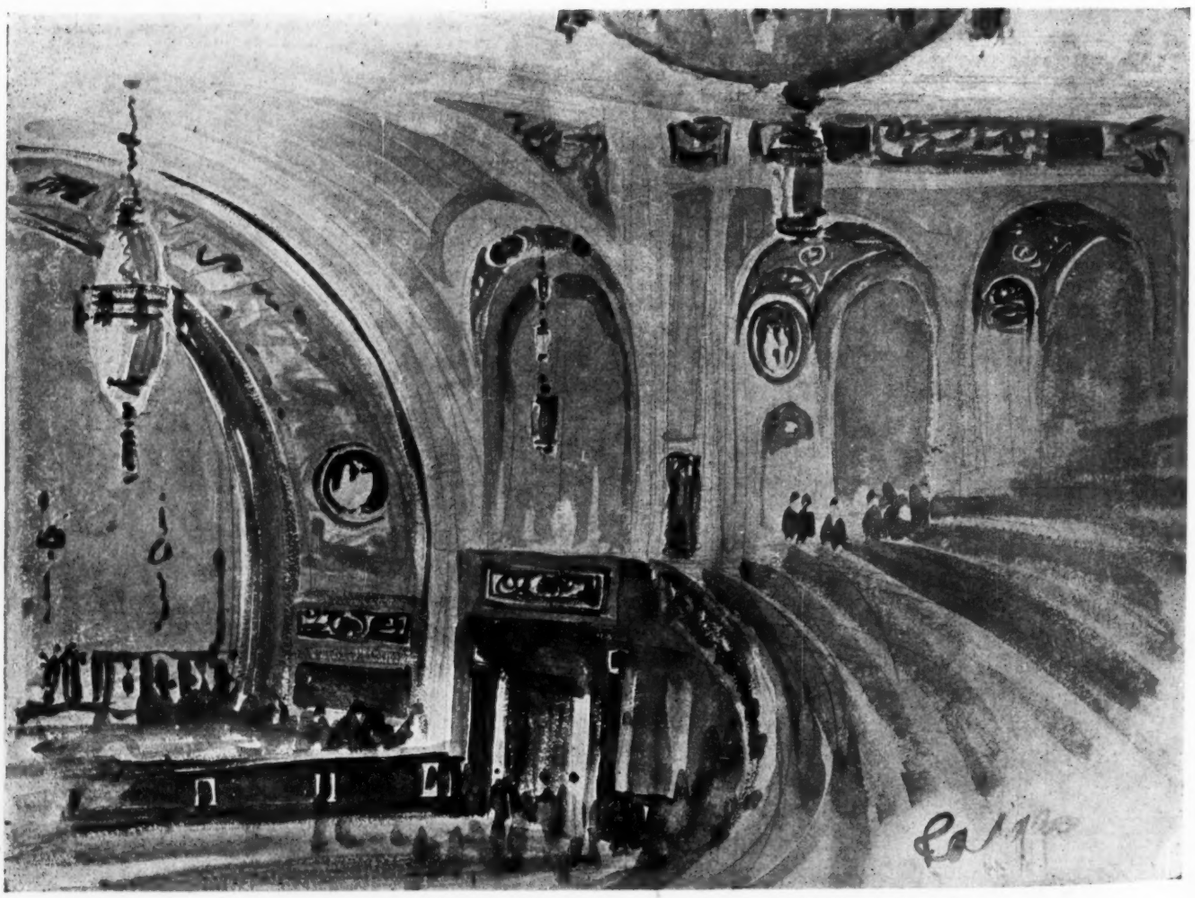
Architectural Association.—Mr. G. K. Chesterton on "A Layman's View of Architects and Architecture." At 34-35, Bedford-square, W.C.1. 7 p.m. Also exhibition of metalwork.

THURSDAY, *June* 2.

Royal Institute of British Architects.—Mr. H. M. Fletcher on "Building a House." At 9, Conduit-street, W.1. 5 p.m.



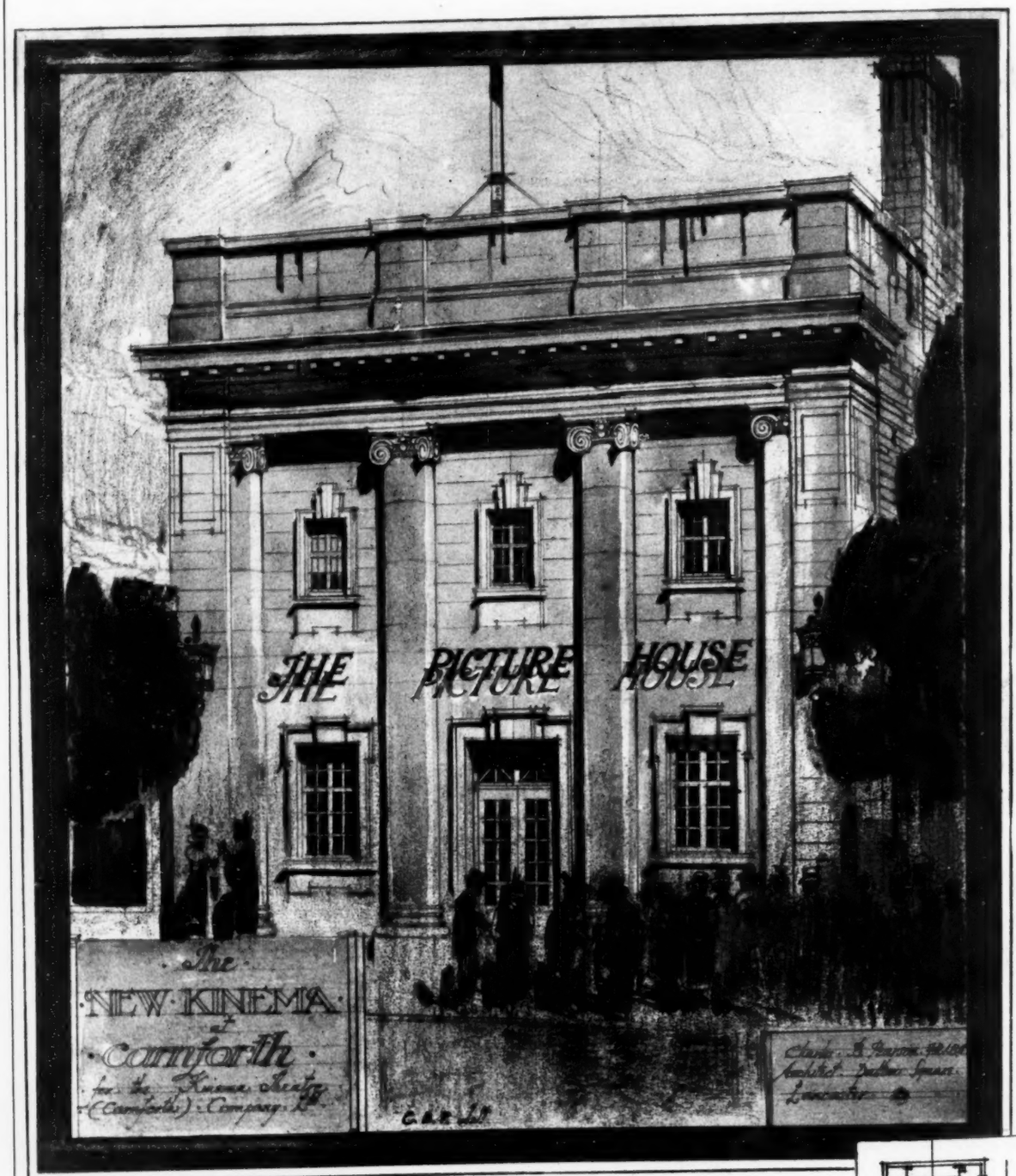
EXTERIOR.

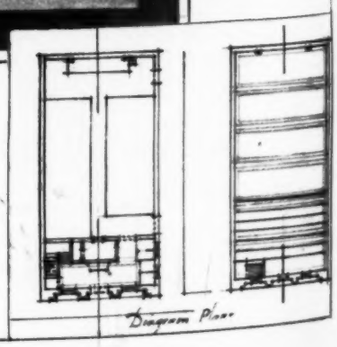


INTERIOR.

The Regent Cinematograph Theatre, Brighton.

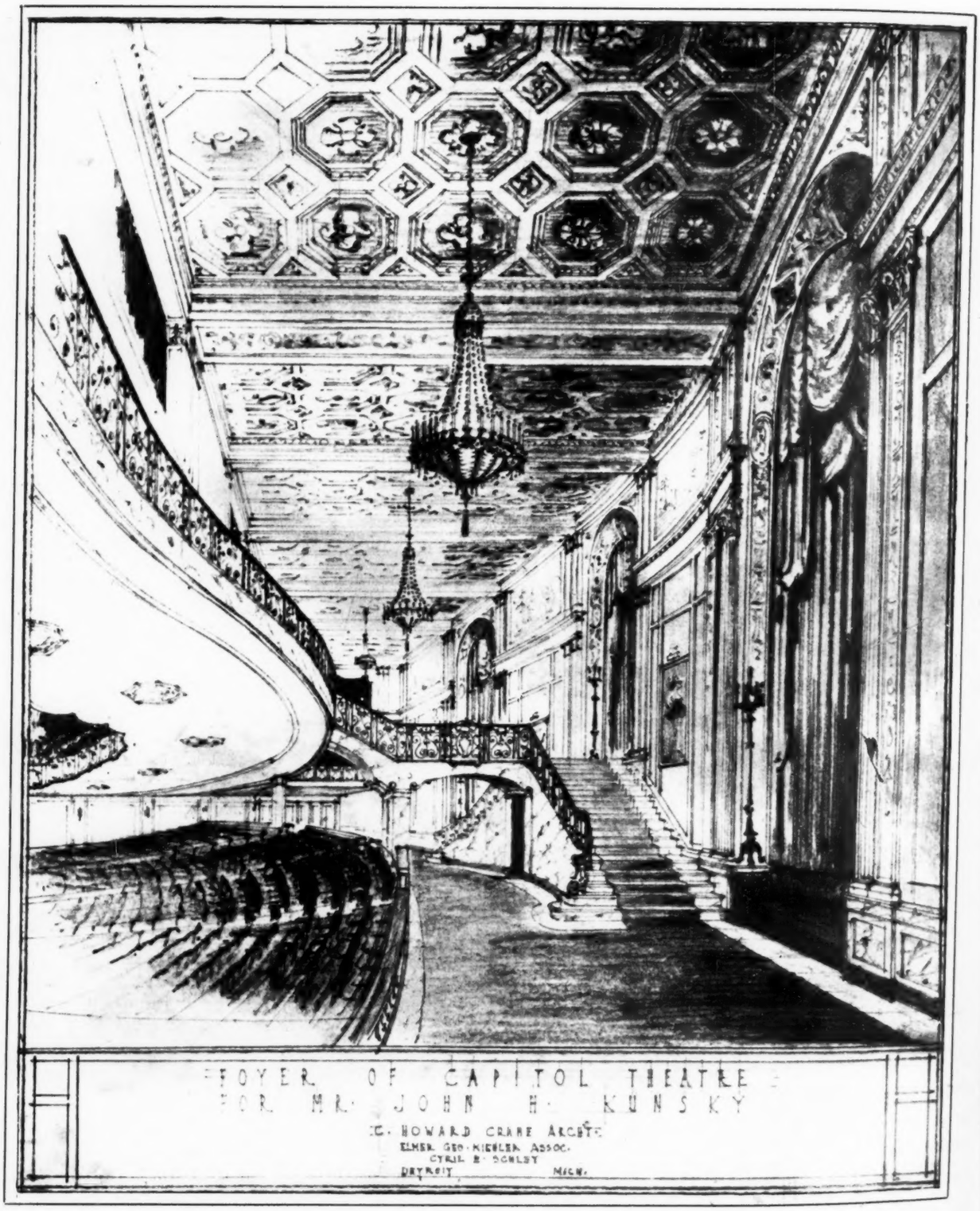
Mr. Robert Atkinson, F.R.I.B.A., Architect.



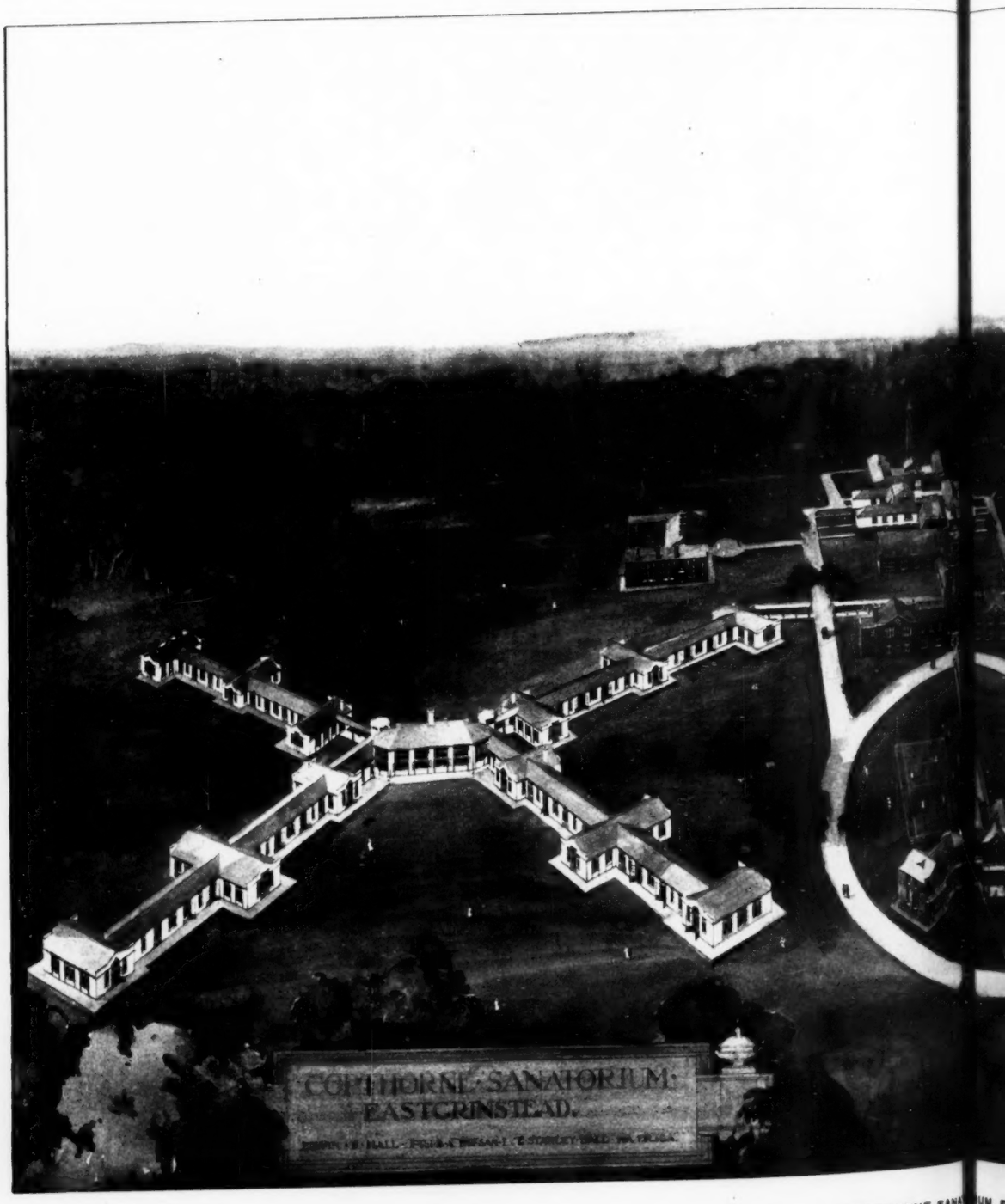


R.A. EXHIBITION.

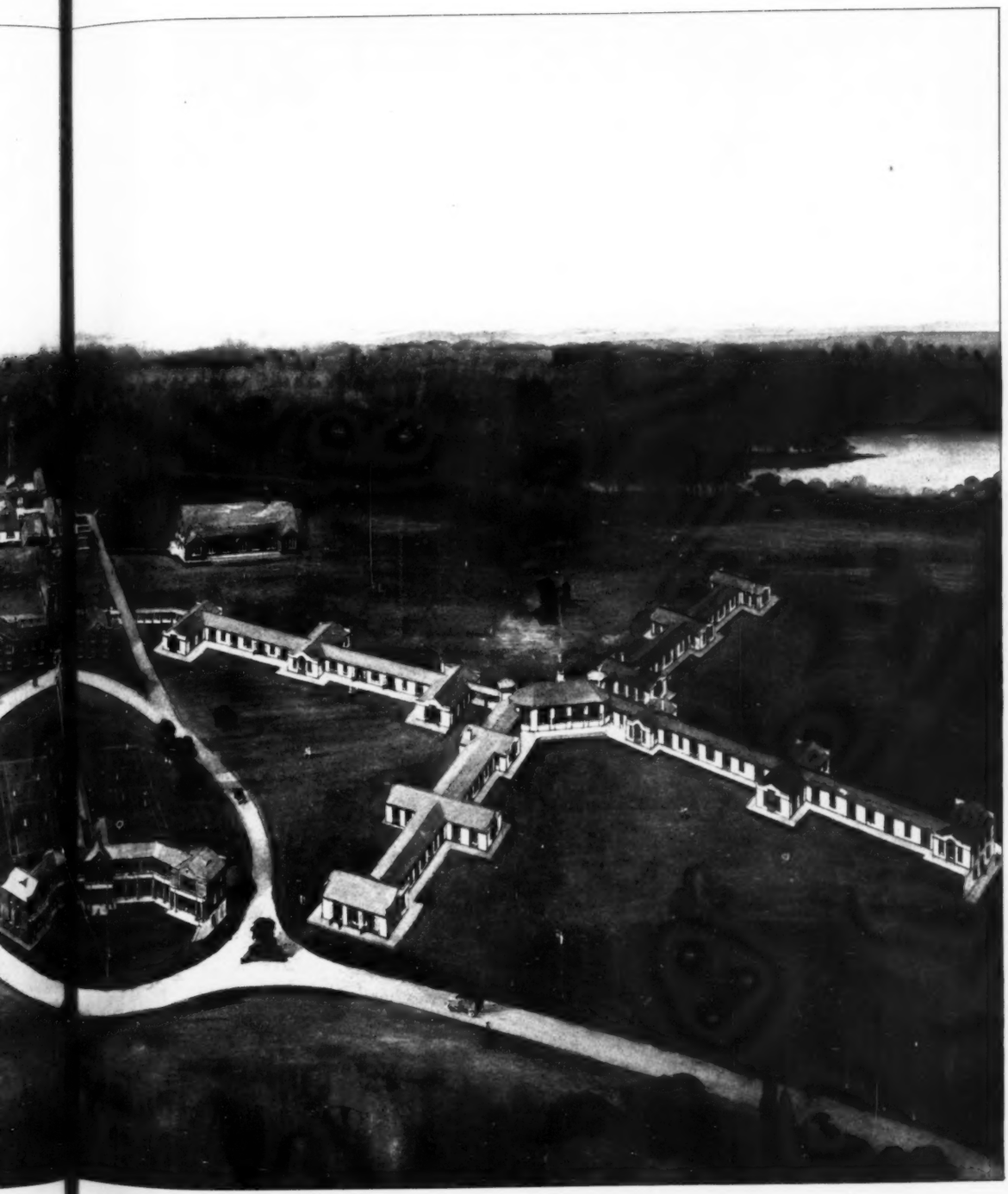
MR. C. B. PEARSON, F.R.I.B.A., ARCHITECT.



THE CAPITOL THEATRE. DETROIT. MR. C. HOWARD CRANE, ARCHITECT.

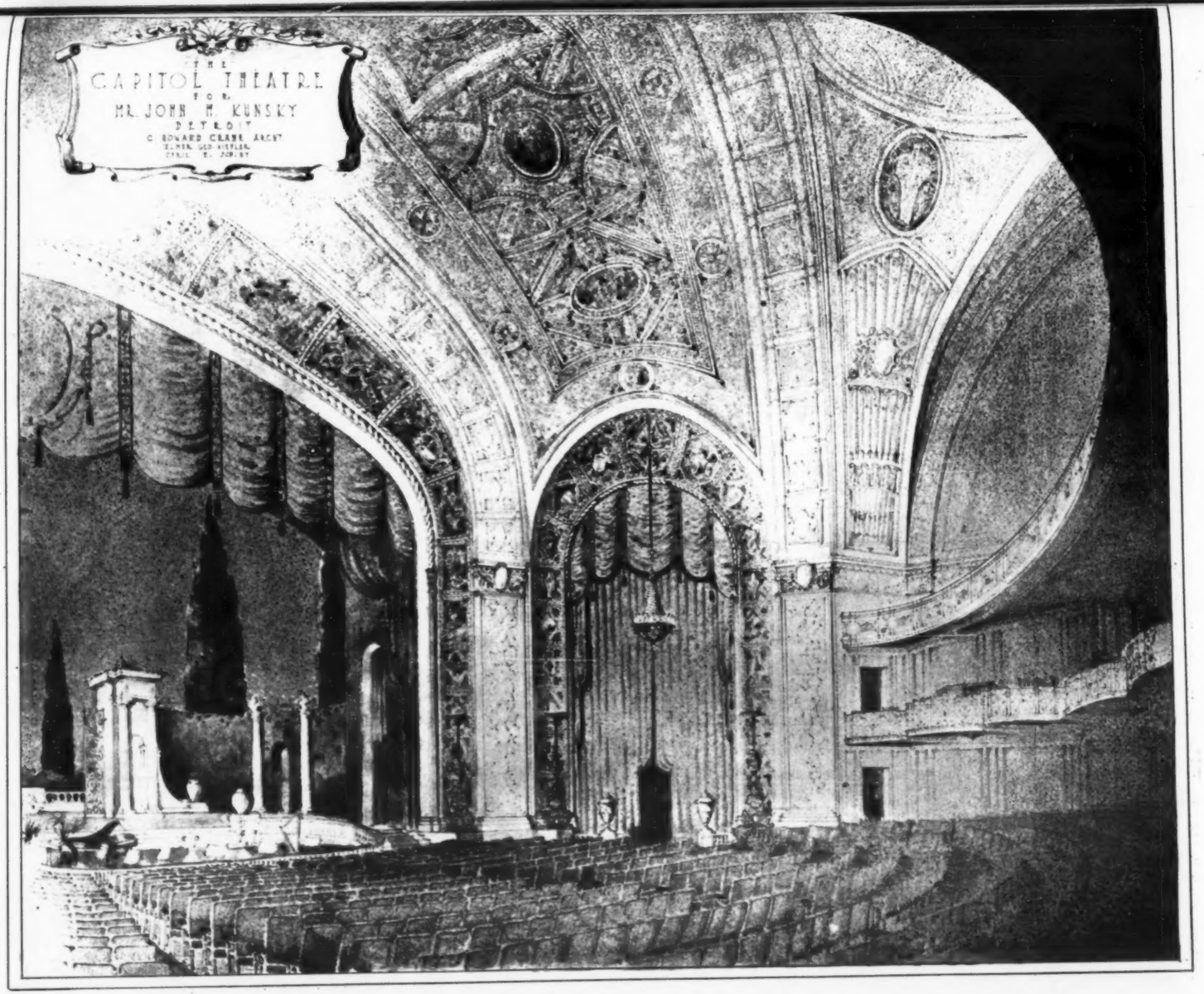


COPTHORNE SANA UM.
MESSRS. EDWIN T. HALL, F.R.I.B.A. ANLEY



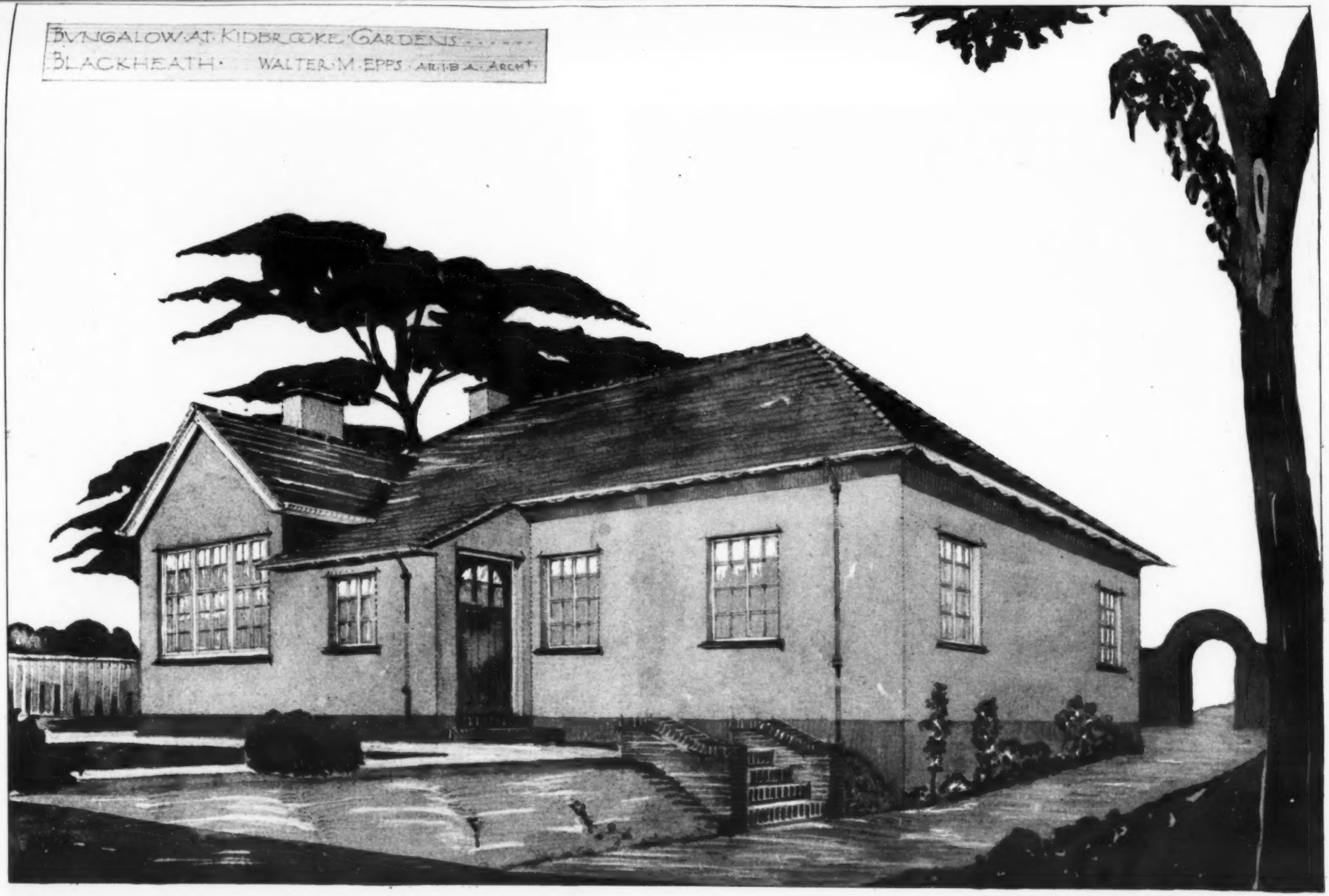
ORNE SANA UM, EAST GRINSTEAD.

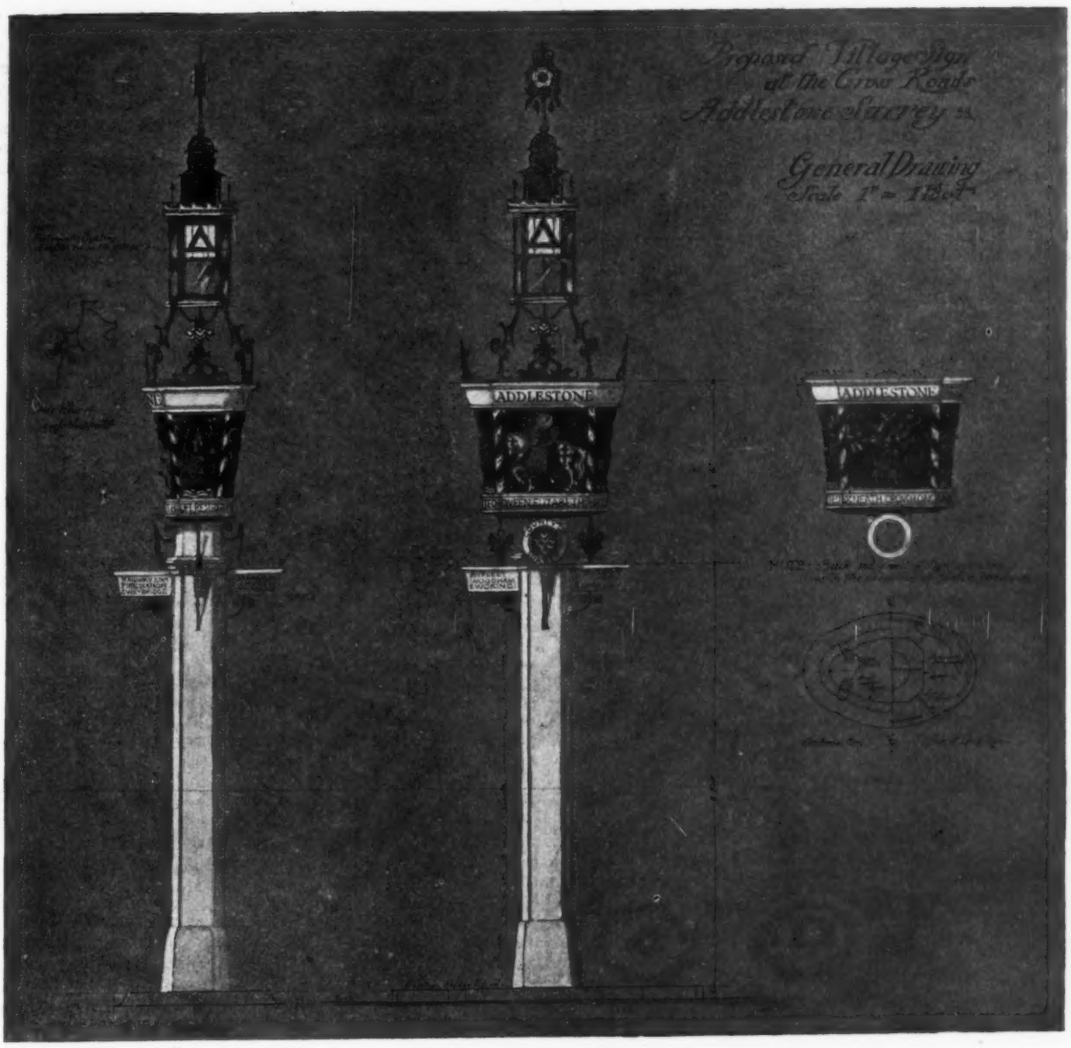
F.R.I.B.A. TANLEY HALL, M.A., F.R.I.B.A., ARCHITECTS.

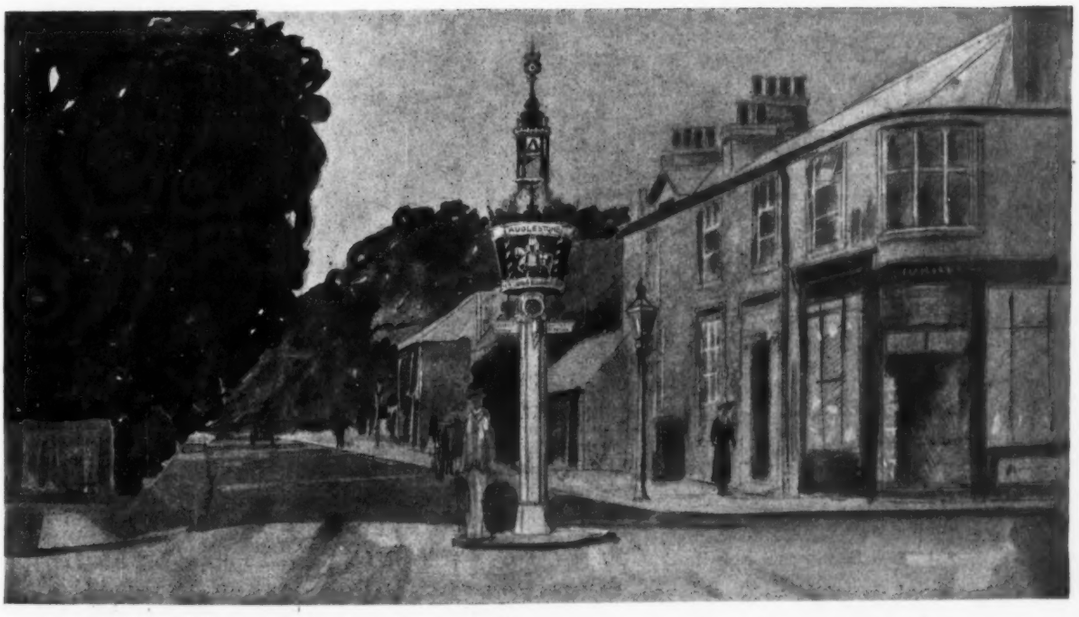


THE CAPITOL THEATRE, DETROIT. MR. C. HOWARD CRANE, ARCHITECT.

BUNGALOW AT KIDBROOKE GARDENS, BLACKHEATH. WALTER M. EPPS, A.R.I.B.A., Archt.







Design for Village Sign at Addlestone, Surrey. By Mr. Robert Evans.

[This sign is designed for a site at the cross roads at Addlestone, one of the conditions being that a lamp must be incorporated. The motif of the design is the "Crouch Oak," which is still in existence, and under which Queen Elizabeth is said to have rested. On the front of the sign is depicted Queen Elizabeth, and on the back is "Crouch Oak," with its branches encircling the sign. On the sides are represented Windsor Castle and Pyrford Manor. The finial of the lamp is the crowned Tudor Rose, and the arms of the County of Surrey are below. The main signpost is of wood, on which are four bent copper panels, with painted decoration. The lamp and ornamental portions of the sign are in wrought iron, and the lamp top in copper. The whole of the scheme is decorated in gold and colour. The total cost is estimated at £200. The design was submitted in the village sign competition held last year.]

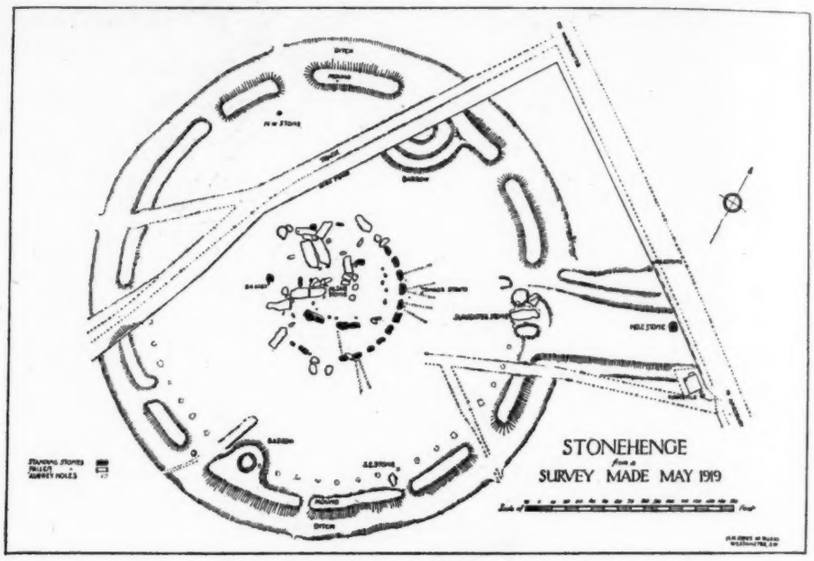
STONEHENGE.

THE following account of the work recently carried out by H.M. Office of Works, together with the drawings and photographs, are published by the courtesy of H.M. Office of Works:—

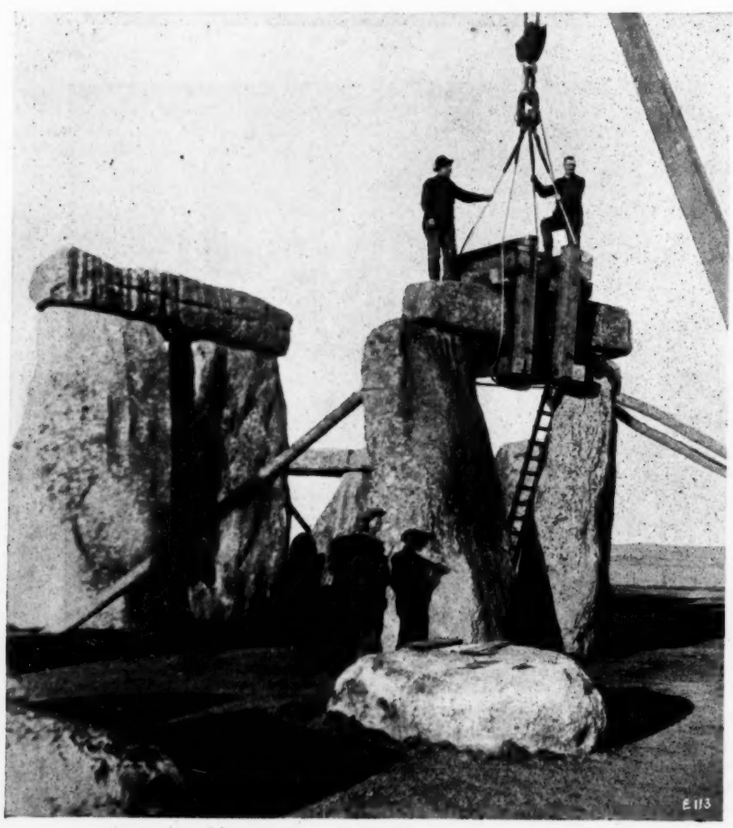
The date and origin of the circles at Stonehenge have been variously estimated from time to time. The first mention of them is made by Nennius in the ninth century, and they are stated to have been erected in commemoration of 400 nobles slain by Hengist in 472. Inigo Jones, in his work on Stonehenge, published in 1655, postulates the theory that the remains are those of a Roman temple. This theory was vigorously refuted by Dr. Charleton, the physician to Charles II, in 1725. Similarly, many theories as to the form of worship carried on within the erection have been advanced. The sun, on Midsummer Day, rises nearly over the axis above the Heel Stone, and this fact has, in the opinion of many, clearly pointed to sun worship. The actual position of the sun on Midsummer Day would deviate, and the amount of this deviation would vary directly with the elapse of time; moreover, the amount of this deviation can be calculated. Assuming, therefore, that at the time when the structure was built the sun rose on Midsummer Day precisely over the axis, it is possible to estimate the age of the circles. Sir Norman Lockyer has done this in "Stonehenge and Other British Stone Monuments," and computes the date of the structure at about 1680 B.C.

The stones are arranged in four circles. The outer circle of Sarsen stones averages 14 ft. high above ground, and its diameter to the inner face is 97 ft. 4 in. Originally, there were 30 of these stones with 30 lintels; to-day only 16 are standing and five lintels are in position. The second circle is of Blue stones, whose geological formation is not local. These stones are smaller and without lintels, and only nine are standing. Within these are five Trilithons arranged in the form of a horseshoe; each is composed of two imposts and a lintel. One of these imposts, known as the "leaning stone," is said to be the largest native stone in England, being 22 ft. high above ground and 8 ft. deep below. To-day, only six of the uprights are standing, and only two lintels are in place. The most recent collapse took place on December 31, 1900, when a Trilithon was blown down in a severe gale. Within the Trilithon there is an inner ring of 12 Blue stones. Within the centre of these circles lies the Altar Stone, and without the circles are the Heel Stone, the Slaughter Stone, and the S.E. and N.W. Stones.

Stonehenge became the property of the nation in 1918, having been presented by Sir Cecil Chubb, and in the spring of the following year a detailed survey of the stones was undertaken by H.M. Office of Works, under the direction of Sir Frank Baines, C.B.E., M.V.O., in order to ascertain the condition of stability of each individual stone. As a result of this survey it was possible to plot four elevations and a plan at ground level of each stone, and in the case of stones concerning the stability of which any doubt was entertained a series of horizontal cross sections at 1 ft. intervals was drawn. The specific gravity of the Sarsen stones was found to be 2.4 (150 lb. per cubic foot). The centre of gravity of the stones was plotted on the elevations, and a line of thrust drawn. Where stones carried lintels, their weight was combined with the line of thrust. A wind pressure of 40 lb. per sq. ft. was assumed over the full elevation, and the resultant thrust was found. The modulus of the horizontal section at ground level was ascertained graphically, and hence the stresses due to bending and to direct load were obtained. The maximum stresses for No. 7 stone were 78 lbs. per sq. in. for compression and 37½ lbs. per sq. in. for tension. The survey also included a record, by means of sketches and photographs, of every crack and fissure. A report was then prepared, as a result of this work, and a recommendation made to deal with stones Nos. 1, 2, 6, 7, 29 and 30, all of which were in a theoretically unstable condition. This report was in due course presented to the Ancient Monuments Board for England and Wales, which ultimately decided to adopt the recommendations. The Society of Antiquaries arranged to nominate a representative to supervise the work of excavation, so that it could record and examine, on the spot, any object of interest that might be discovered; the Society further undertook to bear the cost of the extra labour that would be involved in sifting and examining the excavated material.



Survey made in May, 1919.



Preparing lintel for removal.

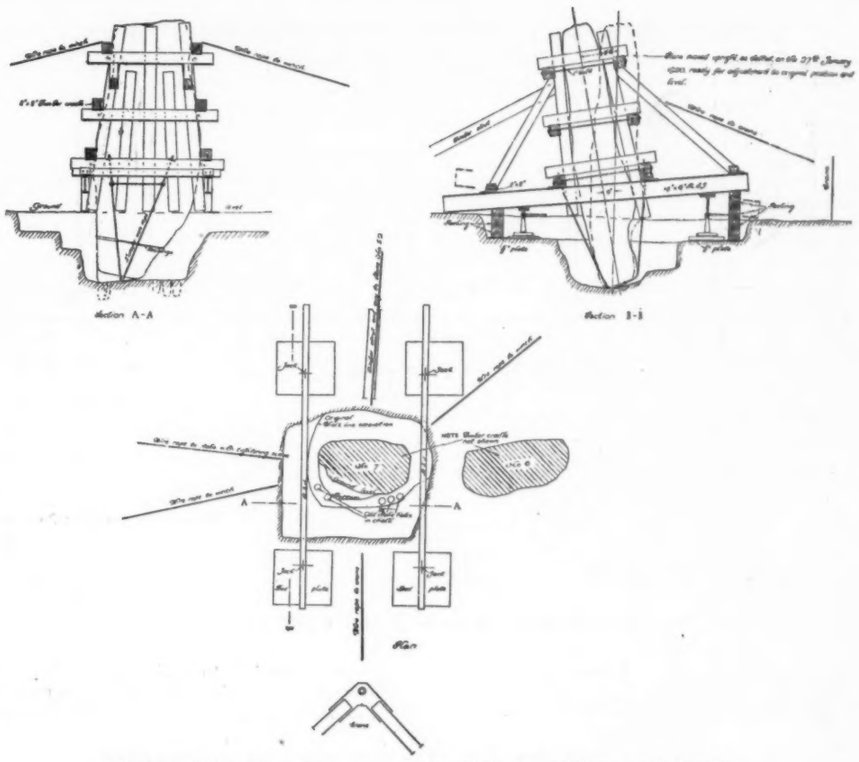
The first stones to be dealt with were Nos. 6 and 7. These stones, which are situated on the south side of the outer circle, were leaning in opposite directions, with the lintel still in position; they were leaning at angles of 7 and 11 degrees from the perpendicular. These stones measure at ground level 6 ft. by 3 ft. and 7 ft. 3 in. by 2 ft. 9 in., and are 13 ft. and 13 ft. 9 in. high above the ground. They each weigh about 20 tons, and the lintel, which measures 11 ft. by 3 ft. by 2 ft., weighs about five tons. The upright stones have circular dowels which fit into dowel holes in the lintel.

Before attempting to move the uprights, it was necessary to remove the lintel, and to achieve this a cradle of 8 in. by 8 in. pitch pine timbers was bolted round the stone, a thick

felt packing being used to preserve the stone from marks. On November 27, 1919, the stone was raised and lowered to the ground by means of a seven-ton hand derrick crane with a 40 ft. jib. Cradles were then fitted round stones Nos. 6 and 7 in the same way.

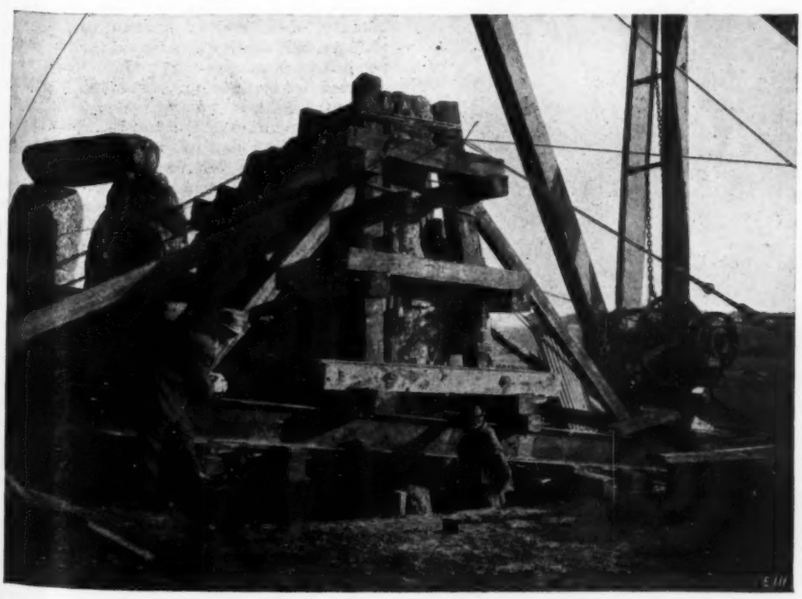
After considering various methods for moving the stones, it was finally decided to adopt the principle of the dumpy level by supporting the stones from the ground with ordinary screw jacks. By this means it was anticipated that it would be possible to move the stones exactly as required without any likelihood of them tilting sideways as they were moved upwards into the vertical, for this factor proved a serious difficulty when the "leaning stone" was raised in 1910 by the Society of Antiquaries. As will be seen by our illustrations, the results achieved were entirely successful. The means adopted to employ the screw jacks was to fix two 14 in. by 6 in. rolled steel joists 20 ft. long under each cradle just clear of the ground and projecting on either side beyond the stone by means of steel angle cleats, and four raking shores were carried down from the top of the cradle to the ends of the joists. The jacks were placed under the ends of the joists, but before this was done a certain amount of excavation was necessary. This was carried out very systematically, so that the exact position of any find could be identified and recorded. The ground was divided into 1 ft. squares by means of battens and a sliding saddle, and the earth was removed in layers of six inches, starting from a fixed datum. The soil was carefully sifted and every find recorded. These consisted mainly of stone mauls, fragments of stones and of Roman-British pottery, and some coins. Meanwhile, before this work of excavation was begun, the stone was stayed in four directions with wire ropes to winches or stakes about 50 ft. away. The excavation extended about 2 ft. to 3 ft. back from the face of the stone. Beyond that, four ⅛ in. steel plates, about 4 ft. square, were laid on the solid chalk to act as bedplates for the jacks. In one case, where the chalk was not sufficiently solid, concrete was employed. The jacks were then put in position so that they were bearing on the under flanges of the joists. In order to obviate any chance of the stone slipping through the cradle when the latter was raised on the jacks, wire rope slings were passed under the stone through a small channel cut in the chalk bed and made fast on either side to the cradle.

On January 27, 1920, the work of reinstating No. 7 stone in its vertical position was carried out. It was done by alternately raising the jacks on one side and lowering them on the other one inch at a time. Immediately on completion of this operation the ground beneath the stone was excavated to a depth of 12 in. and a concrete bed 12 in. thick, reinforced with ⅜ in. rods in both directions, was inserted under the toe of the stone. No. 6 stone was then treated in a precisely similar manner, and the two concrete beds under stones 6 and 7 were connected.



Method of moving Stones to their original positions and levels.

Before filling in concrete around the stones it was necessary to make quite certain that their positions were absolutely accurate, and special steps were taken to ensure this. As has already been mentioned, at the top of the uprights were dowels fitting into dowel holes in the lintels. These were about 4 in. high and 9 in. in diameter. It was thus necessary, first, that the dowel and dowel holes should fit; and, second, that the stones should conform to the general line of the circle. In order to avoid raising the five-ton lintel for the purposes of trial and error, a template was made of the underside of the lintel and a model of the lintel was built up in timber and placed over the uprights, and the necessary adjustments to the uprights were made. Plumbings were again taken of the four faces of the stones. A wooden template, about 60 ft. long, cut to the circumference of the circle (diameter, 97 ft. 4 in.), was made and laid on the ground just touching the faces of the adjacent standing stones (Nos. 5 and 10), and the inner faces of 6 and 7 were made to touch this template. As a further precaution, a dummy lintel was made to span the gap between stones 5 and 6, for since the lintel on stones 4 and 5 was still standing it was possible to observe the continuity of three lintels, viz., 4–5, 5–6, and 6–7.

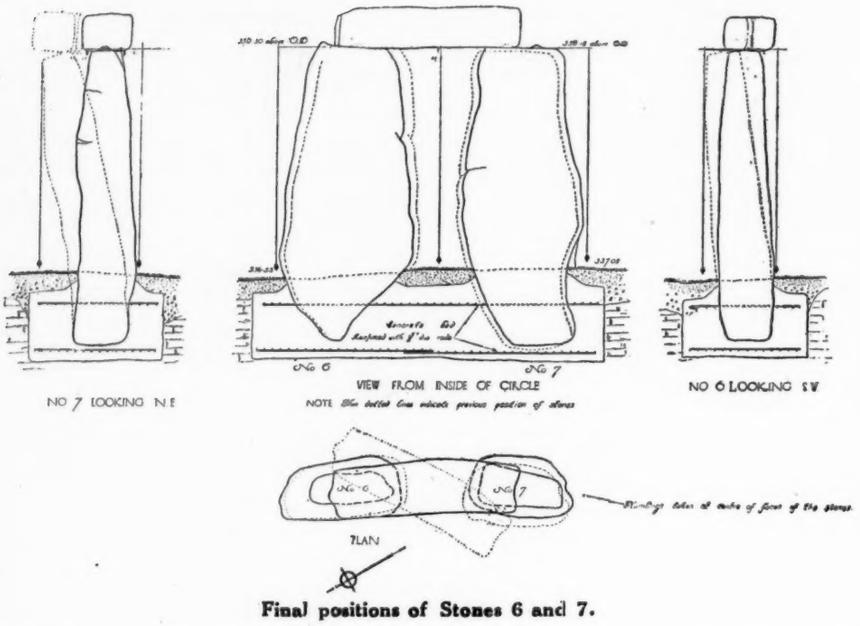


Stone No. 7 after being moved upright.

It was found on examination that in the course of time the dowel and dowel holes in the uprights and lintels no longer fitted, and that there were large voids between them. It was decided, therefore, to make lead caps to fit over the dowels to fill the spaces. In order to do this, plaster casts were taken of the dowels, and templates were made of the dowel holes. From these, reverse casts were obtained and the two parts fitted together and a lead casting made of the intervening spaces. The cup for No. 7 stone weighed 170 lb. and that for No. 6, 69 lb.

On March 17, the lintel was lifted back into position and slight final adjustments, amounting to fractions of an inch, were carried out. The base of the stones below ground and the concrete bed were then thoroughly cleaned with water and wire brushes, and the excavation filled in with concrete reinforced with ⅜ in. rods. This was levelled off about 12 in. below the ground at the outside edge, and about 3 in. adjoining the stones. The lintel was then slightly raised and the lead caps were inserted. No. 7 cap was inscribed "May, 1920," and a George V shilling was fitted into the top. Where the lintel did not fit down tightly on to the upright the space was caulked with lead. When the concrete had set, the wire slings were cut off close to the concrete and the ends turned down and cemented into holes previously left for that purpose.

On May 18, the re-turfing was completed. Stones Nos. 29, 30, 1 and 2 were dealt with



Final positions of Stones 6 and 7.

in a similar manner. The whole work was completed without any hitch; no attempt was made at restoration, the operation consisted merely in moving to and securing in their original vertical positions stones whose collapse might otherwise be expected at any moment.

Stones Nos. 6 and 7 after adjustment.

THE THINGS WHICH ARE SEEN.*

This is a remarkable book of special application at the present time, when men's minds are concerned with the relation of beauty to life. We attach very little value to what the author calls the hierarchy of art, or to the order and importance which he attributes to its various manifestations; in fact, the challenge contained in the first paragraph of his first chapter is more spectacular than solid. Stated in another way it means no more than that the artist must be first of all a citizen, and that in the full sense of that word we are all artists—we are all artists in that we are all concerned in the development and perfection of the human type. The book is admirably suggestive and constructive in that it affirms, in the "things which are seen" the spirit makes its most emphatic declaration; and the author warns us against shrinking into the refuge of the inner life which can only find proper completion in the external. The world is not evil, it is only our thinking which makes it so. Within it lies the seed of perfection, and no dislike of its external conditions will justify neglect of the ideal lying in it. But it can only be propagated by deeds; in this way only can we carry out the demands which the world makes upon us. The æsthetic idea includes the moral, and he destroys the mischievous fallacy that beauty is the destruction of morality. Like the Greeks he would have us associate beauty with the most exalted conception of life. It is the artistic idea which has to be more and more propagated at the present time. It is as the servants of beauty that we become the ministers of life's well-being, and so far as religion can be said to be the reconciler of life we find in beauty its expression. As the author finely states, "Beauty is Nature's touchstone by which the attainment of virtue can be recognised," and without this a high general standard of beauty will not be achieved. The artist in many ways has shown himself to be the chief obstruction to this fundamental truth. His outlook on life has withstood it, but now he is seeking a new relationship to the world.

In writing of art, especially that included under the term "fine art," the author has not reached to clear conceptions as to its nature, because art is not only the reflection of the civilisation in which it occurs, as though it was the product of circumstances only. To say that we cannot have art until the average man can judge of it, though we can sympathise with the resistance to the exclusive claims about art which such a view expresses, is not true. Can we have no doctors until the average man is a doctor? In making art depend on the ability of the average man to recognise it is to state a half truth only, because it leaves out of sight the most powerful forces, which are not shaped by civilisation, but out of which civilisation is born.

The function of beauty in the State has never been properly defined, and the betterment of society has been left too much to the reformer and the philanthropist. We have sought moral improvement as an end in itself, whereas unrelated to æsthetic improvement it is of little account. So long as the social value of art is ignored, so long as the influence which beauty should exert over the whole of life is conceived of only as morality, the social reformer will reform largely in vain, and the State will be left as now, dominated by the influence of politics and commerce, when it should be guided by the influence of beauty and religion. Do we ever think of beauty as we think of politics, or commerce, or official religion? Yet the efficacy of all these is governed by the relation to them of the æsthetic ideal. The importance of art can only remain a vague impression on the mind, unless we understand the reason of its importance, and the author does a great service in making these reasons clear. The nation is suffering, disintegrating, because one of the highest sources of its well-

* *The Things which are Seen.* By A. Trystan Edwards, M.A. London: Philip Allan & Co. Price 18s. net.

being exerts so little influence. An instance coming to our notice at the present time well illustrates the relation of art to life. An artist of character and repute, finding the opportunity to do a piece of wall painting, writes of it in the following way: "I did my last job mostly single-handed. I took one end of a 20-ft. ladder along the main street—a ten minutes' trudge!—and worked amid loud noises, gave more than my contract. Nobody seems to realise that it is hard" (he might have said exhausting) "work, and they assume that it pays, which it did not. Risks no end and manual work, with the rest for a pittance. A plain painter told me he got £6 10s. a week—far more than we get. He is paid as a right. We as tho' it were a favour."

We merely give this as an instance of the relation of the good artist to the nation, and of the estimate of the service that art can bestow. The nation suffers in that one of the highest sources of its well-being exerts so little influence—an influence without which morality will exercise itself in vain.

One of the evils, gigantic now in its proportions, is the ascendency of politics, with consequent unrest, division and contention. The place of politics now so paramount is reached mostly on the decline of those activities which most contribute to a well-ordered State. It is true that there is growing an impression that beauty could be of greater service to the State, but it is at present too much governed by the low commercial aim that such influence would increase our hold of the markets of the world. At the present time many of us, for want of a philosophy to guide us to its better understanding, can only see a value for art in making use of it. This book in such a light has great importance in establishing the fact of the fundamental relation to life of the æsthetic idea and of the dependence of the future on its realisation.

EXHIBITION NOTES.

THEATRE SUBJECTS AT THE A.A.

THE exhibition of theatrical subjects, drawings and models at the A.A. is a very pleasant innovation, and one might hope that exhibitions of a similar nature could follow. The little models are very interesting, and the drawings of scenes and drop curtains and costumes make together a very varied lot of subjects. The models show how a certain reticence and dignity which go with architectural design mark an admirable and desirable quality in theatre work. Amongst the more noticeable subjects are "The Park," by M. Levy Marc-Henri; "The Peace Pageant," by G. Laverdet; "The Sun Worshippers," by Eric Howard (model); a nice colour scheme of an "Eve" sketch by Eric Howard; "The Beggar's Opera" (model), by Lovat Frazer; a scene from "The Magpie," by Messrs. Levy Marc-Henri, Roussin and Laverdet; and designs by Palmer Jones. A drawing is also shown of the setting for the Chelsea Arts Ball, by Messrs. Augustus John, Percy Tubbs and L. H. Bucknell. The full list of exhibitors is as follows: Messrs. Gerald Forsyth, W. Palmer Jones, A. Rutherston, Geo. Sheringham, Levy Marc-Henri, G. Laverdet, Lovat Frazer, R. Schwabe, Hugo Rumbold, G. K. Benda, Eric Howard, Comelli, Miss Margaret B. Calkin, "Mayflower Banner." Students' work is shown by Messrs. Cecil Smith, H. H. Musgrave, and Brodie.

THE MANSARD GALLERY.

Of the colour values in some of the subjects in the fourteenth exhibition of the London Group there can be no doubt, and of this Nos. 17, 20, 56, 67, 75, and 77 are examples. No. 56 is quite a delightful little picture of still life. "The Cornish Village" (101) is a really attractive study. The exhibition as a whole is something of a nightmare, the pictures of the nude figures being particularly repellent, though there should be nothing in the nude figure to cause any feeling of disgust. One cannot help wondering what, if any, good will come of exhibitions like this, unless, indeed, some of the very clever work could be inspired by some better ideals.

THE "ORDERS"—OF WHAT USE ARE THEY?

BY "ONE WHO ADMIRES THEM."

(*Concluded from p. 650.*)

CARVED foliage cannot be expressive of strength, although when the stone is not too deeply incised the eye is satisfied that there is no sensible reduction in carrying power. At the angles of a building we need a robust appearance, and we rather resent the presence of foliage in such situations. Hence it is often appropriate that piers responding to Corinthian columns should be treated somewhat after the fashion of Grecian antæ, responding to Ionic columns.

In Roman and Renaissance architecture, the varieties of Corinthian, pseudo-Corinthian and Composite orders are so numerous as to defy classification. But the differences are most strongly marked in the capitals, and here a broad distinction can be drawn between those of the dainty feminine proportions found in the orthodox Corinthian order, where the capitals are from about 1½ to 1¼ diameters in height, and those of just 1 diameter high, as in the Temple of Vesta at Tivoli, and in many modern works, especially in France. Fig. 1 is an outline from Vignola's delineation of the Corinthian order.

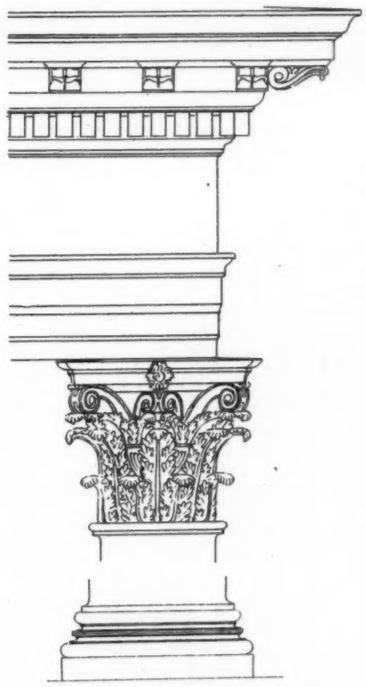


FIG. 1.—**The Corinthian Order of Vignola.**

The column is 10 and the capital 1½ diameters in height, and nothing much more slender can be made to look happy in stone. Compare this capital with that from the Temple of Vesta at Tivoli (Fig. 2), where the column is only 9¼ and the capital, as stated, 1 diameter high.

Such a squat capital demands a shorter shaft, and whoever takes the trouble to work out a sum in proportion will find that, as 10 : 1½ :: 9¼ : 1 within a small fraction. Where such squat capitals have been used in columns about 10 diameters in height there is an effect similar to that of a man in a too lengthy coat buttoned up to the chin. Where these squat foliated orders are used they are far more fit to be surmounted by the ordinary delicate Corinthian than the latter is to stand under the Composite, with its rather clumsy capital, compounded of Ionic volutes and Corinthian foliage. The Composite must be pronounced heavier than the Corinthian order, although from their practice in regard to it architects appear to have assumed it to be lighter.

Vignola's Corinthian order has been so frequently repeated in stone, it might be said with wearisome monotony, that the fact may be taken as evidence of universal admiration for its graceful proportions and chaste while luxuriant detail. By common consent, it is

FIG. 2.—**Capital from the Temple of Vesta, Tivoli.**

assumed to be above criticism. If, however, an objection may be urged against one of its details that one is the unprotected ovolo which is the top member of the abacus. I suggest that a species of cushion moulding, or something resembling the Greek echinus, would have more immunity from the action of the weather or of a workman's ladder.

Engaged columns present a somewhat clumsy side view, owing to the diminution of the shafts, which causes a larger portion to be seen at the neck than at the base—a defect which is aggravated by the presence of flutes. Pilasters without entasis are preferable. A pilaster capital quite unique in its way is one from the upper range in the interior of the Pantheon, represented in the sketch (Fig. 3) from a plaster model in the British Museum.

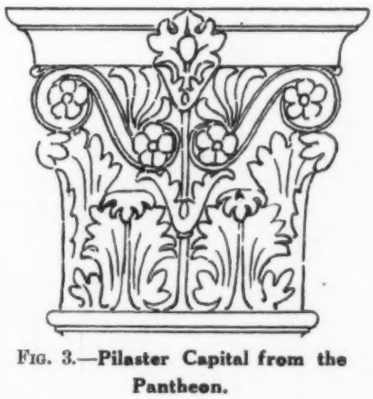
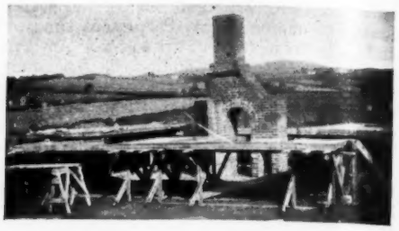


FIG. 3.—**Pilaster Capital from the Pantheon.**

The abacus, concave in front, is straight at the sides, and this gives rise to the question, Why must the side elevation of a foliated pilaster capital be nothing other than a split or otherwise mutilated replica of the front? Is it not possible to design something complete in itself, neither mutilated nor distorted? In the Grecian Ionic capital the solution of the problem was simple enough, and with foliated capitals it should not be beyond our ingenuity. A Composite capital could have a Grecian Ionic rolled volute, and it would remain only to arrange the foliage symmetrically on the flank.



NEW METHOD OF CONCRETE COTTAGE CONSTRUCTION.

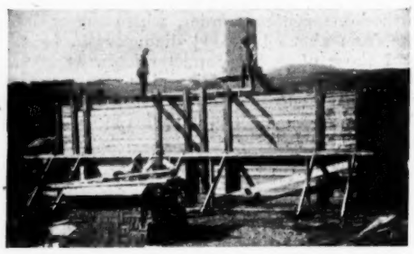
WE have received the following notes and the accompanying illustrations from Mr. James Houston, A.R.I.B.A., of Kilbirnie :—

A new method of concrete building has been used for the construction of a cottage at Kilbirnie, Ayrshire, with successful results, and the illustrations on this page show the progress of construction from the laying of the foundations to the completed work.

It has been recognised for some years that concrete spread on a horizontal platform is much cheaper than the same material built up by means of moulds into a wall or cast in blocks and then built into a wall. So much is this the case that patents have been taken out for forming the walls of a house on horizontal platforms on the ground and afterwards, by means of powerful machinery, moving them to their destined position and hoisting them into the perpendicular. This method has been employed occasionally both in this country and in America with some measure of success, but it is obvious that the cost of providing the requisite machinery

and still more perhaps of moving it from place to place as required is such as to neutralise to a large extent the advantage gained from the more economical use of the material

This objection is removed by an invention (Patent No. 12,592, 1913), by the late Mr. T. L. Watson, F.R.I.B.A., which dispenses altogether with the use of machinery while retaining the advantage of forming the walls of concrete on a horizontal platform. On this system the walls of the cottage illustrated were formed by means of a layer of concrete spread on a horizontal platform a few feet above the ground and



hinged as nearly as possible along the centre of gravity, so that when the concrete had set each wall was turned over on its hinges into its exact position. As this platform in its horizontal position is balanced in the middle, due allowance being made for door and window openings, it follows that the lower half of the wall, in descending, automatically raises the upper half. No force was required and no apparatus employed (other than rope), the wall turning over as easily as a door on its hinges, or as a fanlight on pivots. The platform was adjusted to its vertical position before the concrete was applied, and the wall naturally assumed its destined place with accuracy.

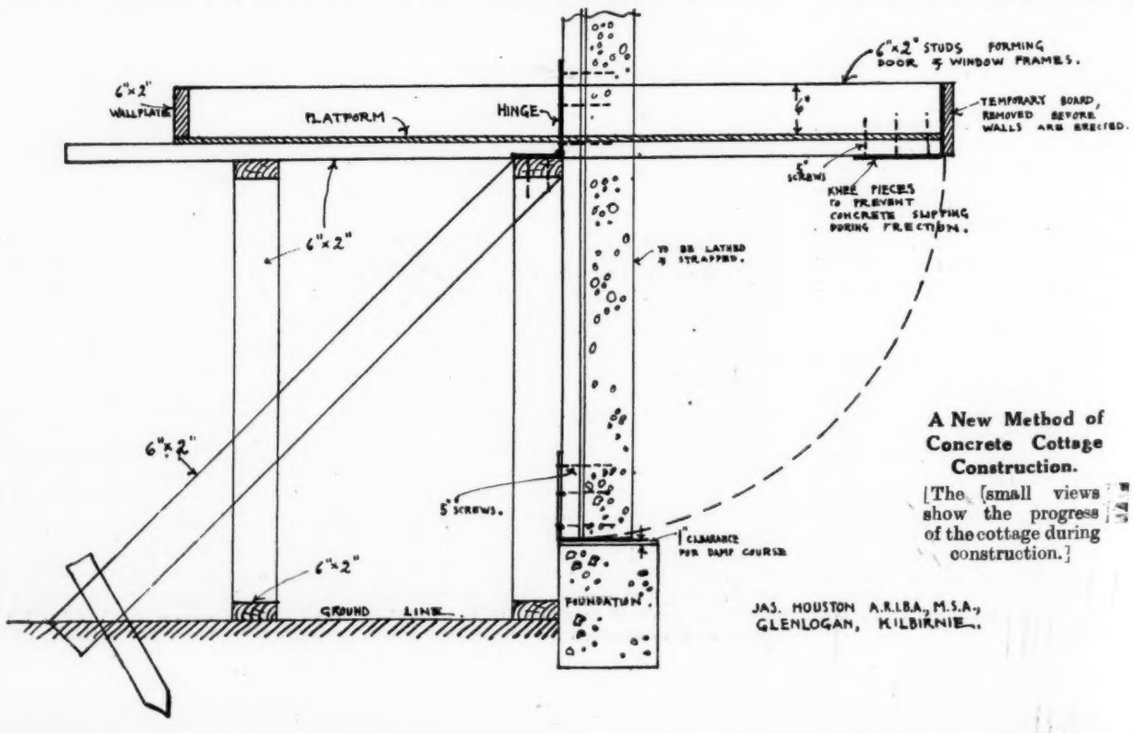
The door and window frames were laid down on the platform before the concrete was filled in, so that the house was then ready for its roof and internal finishings. The platforms were formed of the roof spars and boarding, so that the greater part of the material was on the site and ready for use. The time taken to erect the four walls, after the concrete had set, was only one-and-a-half hours.

The greatest economy might have been achieved by placing a flat concrete roof on the top of the walls, but every attractive quality of the kind usually associated with cottage architecture would have been lost. Fortunately, there is nothing to prevent the concrete cottage from being roofed as any other cottage might be and from becoming as picturesque and delightful as we choose to make it.

The diagram illustrates the construction in detail and shows the trestling and platforms in their preliminary and ultimate positions. Grooves were left in the concrete of the side and end walls where they meet at the corners of the building; these grooves were filled in from above with liquid cement, thus binding the walls together into one homogeneous and monolithic structure.

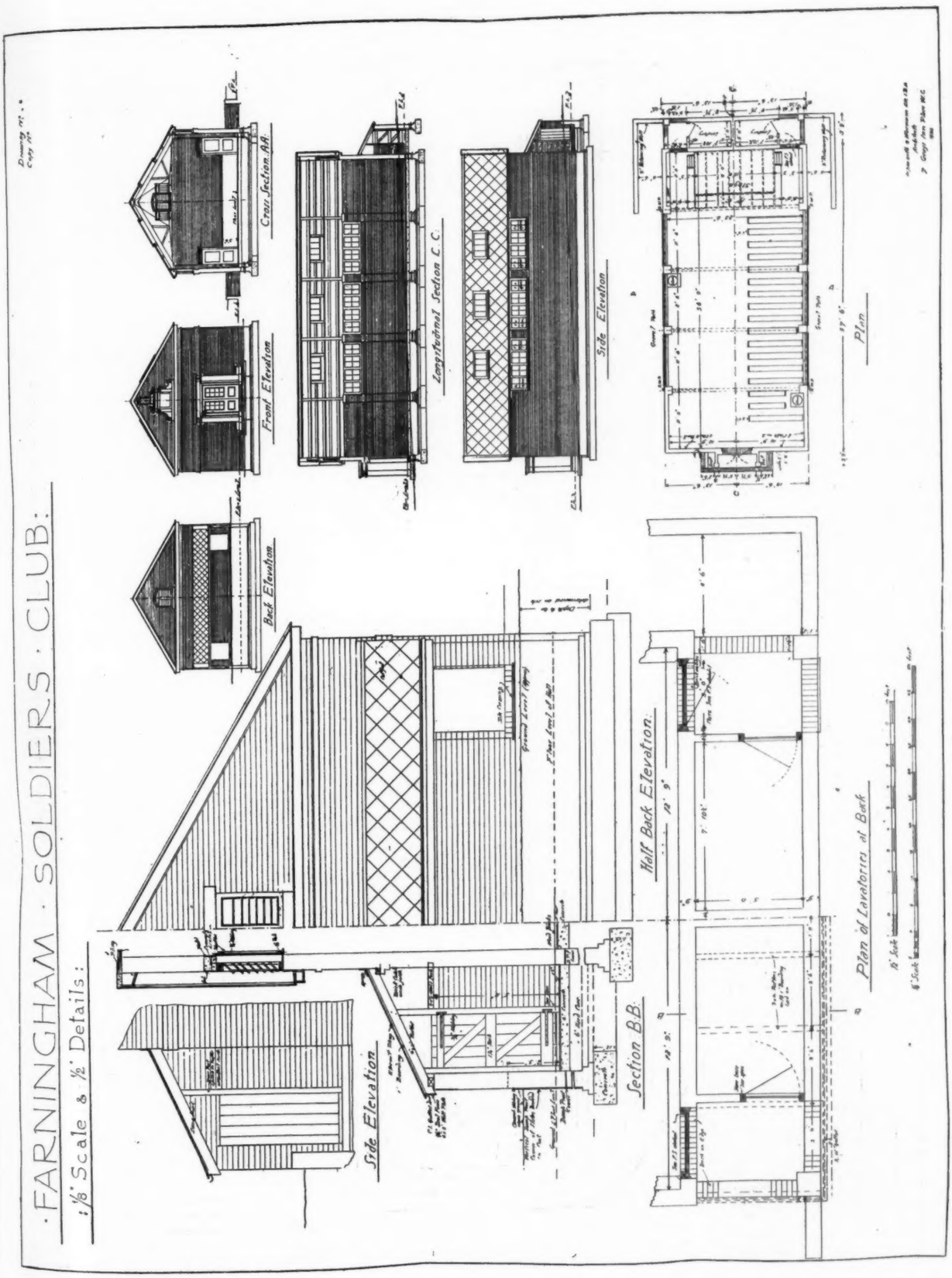
To some extent the method of construction will influence design, but local characteristics and traditional features need not be ignored, and, as with any other material, the quality of the design will depend upon the designer. One need

not have any prepossession in favour of concrete, but the roughcast dwelling is with us already and has a secure place in our affections; and the roughcast dwelling may be of concrete as well as, or better than, of stone or brick.

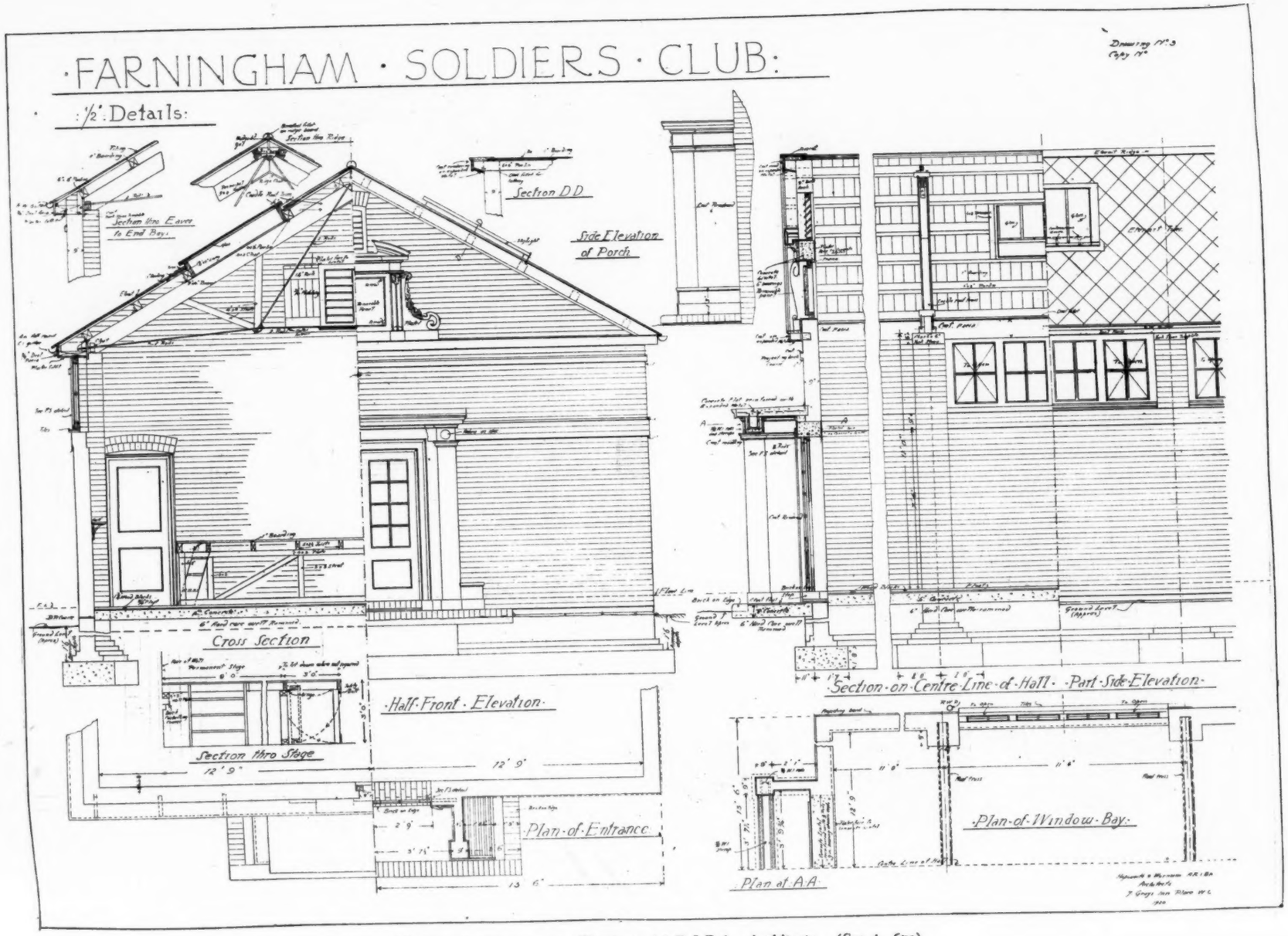


A New Method of Concrete Cottage Construction.

[The small views show the progress of the cottage during construction.]



MESSRS. HEPWORTH AND WORNUM, A.R.I.B.A., Architects. (See p. 679).



MESSRS. HEPWORTH AND WORNUM, AA.R.I.B.A., Architects. (See p. 679).

LEGAL SECTION.

NOTES ON CURRENT CASES.

Increase of Rent: Rates.

The case Cardiff Corporation *v.* Isaacs (*Weekly Notes*, April 30) again raised a question which originally arose in the early days of rent restriction, and was the subject of decision in the case Sutton & Sons *v.* Hollerton (*The Builder*, September 27, 1918). The plaintiffs were the Cardiff Corporation who owned houses which were subject to the Rent Acts and held on weekly tenancies. The rates in Cardiff are assessed for half-yearly periods ending on March 31 and September 30. For the six months ending September 30, 1920, the new rate was not made until May 17, the rate then allowed exceeding the rate payable for the same half-yearly period in 1914 by £1 18s. The question raised in the case was what proportion of this increase in the rates could be recovered in the period of six months. The plaintiffs claimed that they were entitled to recover the whole sum, and they divided the £1 18s. by the number of weeks remaining in the half year, whilst the defendant claimed that the sum must be divided by the whole number of weeks in the half-yearly period, viz., 26 weeks. In the county court it had been agreed that as the Act of 1920 only came into force on July 2, 1920, the case should be treated as falling within the previous Acts, but from the judgments delivered in the Divisional Court it appears that the decision will equally apply to the new Act.

The plaintiffs argued on the authority of a dictum of Lord Alverstone in the case Cheney *v.* Tallowin (1904, 2 K.B. 763), that the rating period is to be taken from the date of the allowance of the rate, which in this case would be May 17, but the court declined to follow this dictum as its result would be that the rate could not be applied to expenses incurred between March 31 and May 17. The court found that the new Act explained the old Acts, for in section 12(1)(*d*) it is provided that "Any increase in rates payable by a landlord shall be deemed to be payable by him until the rate is next demanded," which indicated that the tenant's liability was not confined to the broken period and the proper divisor was 26 weeks, the half-yearly period. This decision is in accordance with that in Sutton & Sons *v.* Hollerton, and applies under the new Act as well as under the previous Acts.

Increase of Rent: What is a "House"?

In our issue for February 25 we noted the case Wellesley *v.* White on the point really decided, *viz.*, that section 5, subsection (3), which gives the court power to rescind orders made before the passing of the Act of 1920 but not executed does not apply to orders made by consent, but a very important point was raised in that case which, although owing to the finding on the first point it was unnecessary to decide, was argued, and one of the judges expressed an opinion upon it. The house in question comprised a dwelling-house with an outhouse, detached stable, and small garden, an adjoining mill and granary both communicating with the house, a piece of water, and a grass field. The owner brought an action to recover possession, and the tenant under the old Acts could not resist the action because section 2, subsection (2) of the Act of 1915 provided: "The Act shall apply to a house or part of a house let as a separate dwelling where such letting does not include any other land other than the site of the dwelling-house and a garden or other premises within the curtilage of the dwelling-house. . . ." The defendant had therefore compromised the action by giving up the field and retaining the other premises until September, 1920.

When the Act of 1920 came into force he had applied under section 5, subsection (3), to have the consent order set aside and the matter re-opened, with the result indicated above, but had the matter been re-opened he desired to contend that the whole of the premises were within the new Act by virtue of section 12, subsection (2) (iii), which is as follows: "For the purposes of this Act any land or premises let together with a house shall, if the rateable value of the land or premises let separately would be less than one-quarter of the rateable value of the house, be treated as part of the house, but subject to this provision this Act shall not apply to a house let together with land other than the site of the house." The defendant desired to contend the premises complied with this provision.

The court had not to decide this question, which it intimated was one of difficulty, but Mr. Justice Lush expressed the opinion that the term "house" would include the adjoining buildings and the garden; he does not, however, appear to have referred to the paddock. From this case it is apparent that confusion has arisen from the omission of the words "or other premises within the curtilage," which if inserted in this paragraph of the subsection would have done something to make the matter clearer. The case is now reported (1921, K.B. 204).

House Agents' Commission.

In the case Goodman *v.* Way and Waller (the *Times*, April 21), some interesting points appear to have been argued, but in the result the case was remitted back to the county court for further trial. The plaintiffs in this action were suing the defendants, who are house agents, to recover the balance of a sum of money paid to the agents as deposit on a sale of property.

The plaintiffs were the holders of certain leasehold property which had been placed in the defendants' hands as agents to sell, and the defendants had found a purchaser who had entered into a contract to buy the leasehold for £750 and had paid a deposit of £75. The purchaser declined, or was unable, to complete, and the plaintiffs had brought an action for specific performance against the purchaser in the Chancery Division. In that action no decree for specific performance had been made, but an inquiry as to damages had been ordered. The commission to be paid to the agents on a sale taking place had been arranged as 5 per cent. on the purchase price and 7½ per cent. on the first year's rent, and the defendants, in this action, had deducted the sum represented by the commission at the above rates from the deposit and had paid over the balance to the plaintiffs. The plaintiffs had allowed 5 per cent. on the deposit, a sum of five guineas for work done, as a *quantum meruit*, and were suing for the balance of the deposit, viz., £38 5s.

The county court judge had given judgment for the plaintiffs for commission on the deposit and commission on the first year's rent. The Divisional Court appears to have held that the judgment was wrong in two respects, for in holding that the defendants were entitled only to commission on the deposit the county court judge had followed a dissenting judgment of Lord Justice Vaughan Williams in the case Passingham *v.* King (14, T.L.R. 392) and he had not taken into consideration the question as to whether the defendants had discharged their duty in finding a purchaser, since it was alleged the purchaser put forward had proved insolvent. The court intimated that the majority of the court in Passingham *v.* King had not intended to lay down that business had resulted merely on the signing of a contract, and the case must be referred back to the county court. Mr. Justice Bray intimated some doubt whether the breach of duty point would afford an answer to a claim for commission and suggested that a claim for damages should be added so as to enable all questions between the parties to be tried.

Workmen's Compensation: Scope of Employment.

In our issue for December 31 we briefly noted that three cases had been decided in the House of Lords where workmen had met with accidents in consequence of having acted in contravention of statutory regulations. The three cases, A. G. Moore & Co. *v.* Donelly, Fife Coal Co. *v.* Sharp, and Fife Coal Co. *v.* Fyfe, are now fully reported (1921, 1 A.C. 329).

In the first two cases the men had approached shots within a time which was prohibited by statutory regulation, and in the second of the two cases there was also a notice posted up calling attention to the prohibition. In the third case the man had gone to fetch some nails, traversing a part of the mine contrary to regulation made with statutory authority and which was fenced off, there being no necessity for him to do so, he knowing that nails could have been procured by a permitted road. The Scottish Court of Session had in each case allowed compensation, but the House of Lords reversed the decision. The question to be decided was, of course, whether these accidents arose out of and in the course of the employment.

The same question arose on very similar facts in the case Bourton *v.* Beauchamp (1920, A.C. 1001: *The Builder*, June 25, 1920), and the House of Lords held these cases to be covered by the decision in Bourton's case, the Lord Chancellor adopting the following passage from the judgment of Viscount Cave delivered in that case: "I doubt if any universal test can be found. Analogies, not always so close as they seem to be at first sight, are often resorted to, but in the last analysis each case is decided on its own facts. There is, however, in my opinion one test which is always at any rate applicable, because it arises upon the very words of the Statute and it is generally of some real assistance. It is this: Was it part of the injured person's employment to hazard, to suffer, or to do that which caused his injury? If yea, the accident arose out of his employment. If nay, it did not, because what it was not part of the employment to hazard, to suffer, or to do cannot well be the cause of an accident arising out of the employment." In these cases the House of Lords unanimously answered the first of the above questions with "Nay."

An important point to be noted in this decision is that although the rules limiting the sphere of the employment were in these cases statutory the House held that there was no distinction in principle to be drawn between a statutory prohibition and one imposed by an employer. The statutory rule is more well known, and it cannot be the subject of waiver or of informal modification, but a rule made by an employer will also limit the sphere of the employment if it can be shown to have been brought clearly to the notice of the workman. This decision over-rules the case Conway *v.* Pumpherston Oil Co. decided by the Scottish Court of Session immediately before the decision was delivered in the House of Lords in Bourton *v.* Beauchamp.

Whilst we are referring to these decisions we may again draw attention to a further point which was again referred to in the judgments. If a man is acting outside the scope or sphere of his employment, as was found to be the fact in these three cases, then the question as to serious and wilful misconduct does not arise, for the provisions in the Act as to serious and wilful misconduct only apply where the man is acting within the scope of his employment. Wilful misconduct is doing a thing carelessly or recklessly, or perhaps we may even say improperly, within the scope of the employment, not doing a thing which is outside what a man is employed to do at all.

Industrial Disease.

In claims for compensation where the cause of incapacity is an industrial disease, under section 8, subsection (1) of the Workmen's Compensation Act the certifying surgeon certifies that "the workman is suffering from a disease mentioned in the Third Schedule to this Act and is thereby disabled from earning full wages at the work at which he was employed." In the recent case Archibald Russell *v.* Corser (1921, A.C. 351) a labourer (the applicant) was employed in breaking up blocks of pitch for the manufacture of briquettes. On April 21, 1919, alarmed by eye trouble, he left his work and subsequently went as an inmate to the Glasgow Eye Infirmary. He remained there for five weeks, and on June 9 his eye was removed.

On July 3 he was certified by the certifying surgeon to be suffering from a disease to which the Workmen's Compensation Act applies, viz., "ulceration of the corneal surface of the eye due to tar pitch bitumen mineral oil or paraffin or any compound product or residue of any of these substances." Under the heading "Symptoms of the Disease," the surgeon had entered: "He has lost his right eye as the result of corneal ulceration." It had been contended that this certificate was bad, as it was impossible that the man could be certified to be suffering from that disease of the eye inasmuch as the eye had been removed at the time the certificate was given.

There were other points in the case, but it is sufficient to indicate the finding of the House of Lords on the words contained in section 8, subsection (1), that "suffering from a disease includes suffering from the results of an operation properly incident to the treatment of the disease."

Injury by "Accident."

The recent case Dennis *v.* Midland Railway Co. (Northern Counties Committee) (the *Times*, April 22), an appeal to the House of Lords from the Irish Court of Appeal, may also be noted. The appellant was the widow of an engine driver, claiming compensation for the death of her husband from pneumonia. There was an arrangement between the men themselves that the night cleaners should call the engine drivers and firemen in the mornings. On March 25, 1919, the driver's train was timed to leave at 5 a.m., and he was not called until 4.45, in consequence of which he rushed out not properly clothed and without food and joined the engine on a bitterly cold morning and developed pneumonia. The arbitrator had found that the calling in the morning was an incident of the employment, and that the man contracted pneumonia owing to the exposure arising out of and in the course of his employment as an engine driver, and the exposure was caused by the failure to knock him up at the usual time, causing him to hurry to the train without being fully clothed or fed. The Court of Appeal had set the award aside, and the House of Lords confirmed the Court of Appeal.

The "accident" must arise out of and in the course of the employment, but here, according to the finding of the arbitrator, the element of accident had occurred when the workman was in his own house preparing to go to work. It was the man's being unfed and partially dressed which rendered him liable to pneumonia, and the exposure on the engine in such a condition made it only a natural consequence that pneumonia should supervene.

A New Drawing Pen.

The constant filling of the drawing pen is one of the troubles of the draughtsman which will be eliminated by the use of the "Minerva" fountain drawing pen. This well-made pen affords a supply of ink from the holder in a somewhat similar way to the usual fountain pen, and by pressing a knob at the top of the handle the ink is forced down to the pen nib. If this pen bears out the promise of the sample we have tried it should be a great boon to the draughtsman. An ingenious arrangement enables it to be used also for drawing circles. The pen is supplied by Messrs. S. & J. Schonewald, of 83, Goswell-road, E.C. 1.

HOUSING AND TOWN-PLANNING NOTES.

The Cost of House Building.

When the Worcestershire Agricultural Committee was asked on Saturday last to sanction the erection of two pairs of cottages, at a cost of £1,600 a pair, several members urged that there should be as much delay as possible before the cottages were commenced because the cost of erection was coming down.

Housing Requirements.

The National Housing and Town-Planning Council in a memorandum states:—Since the declaration made in the House of Commons by the new Minister of Health to the effect that the building of 300,000 houses in England and Wales (as apart from Scotland) is regarded by the Government as the present limit of commitment under the housing proposals, an endeavour has been made by the Council to secure an estimate of the views of leaders in national and local life concerning the wisdom of the course thus proposed by the Government. It is stated that the view generally held is that there should be no faltering of purpose and no slackening of energy in the task of sweeping the country clear of bad conditions, and, further, it is recognised that a demand for economy which passes beyond the bounds of wise effort to secure that houses shall be properly built at a reasonable cost and asks for the curtailment of a great national policy is one from which men and women of goodwill are bound to disassociate themselves. The efforts of the Council have been for the past two years completely devoted to the endeavour to aid local authorities and the Government to solve problems of administration and cost, whilst all the time maintaining good standards of construction and design. Since the Government policy was announced in 1919 the Council has consistently supported the Government in its housing policy, and in doing this has relied on the fulfilment of pledges given by practically every Member of Parliament elected in 1919 concerning the carrying into effect of a national housing policy. This view is still held, and despite the fear expressed in some quarters that the hopes of 1919 will not be fully realised the Council is confident that it is only a matter of time before the full housing programme is carried out. In taking this view full reliance is placed on the accuracy of the figures and facts revealed in the survey made in 1919 in accordance with the legislation passed in July of that year. The facts and figures therein recorded are such as to place beyond question the extent and character of the need. Even allowing for errors of the kind referred to by Sir Alfred Mond as to the number of houses required there is no doubt that even when a million houses are built there will still be a shortage.

Within the next seven or eight weeks fifteen conferences of local authorities will be held under the auspices of the Council in various parts of the country, to consider the present situation, and the future development of housing and town planning schemes. The centres at which these conferences will be held include: Edinburgh, Norwich, Aylesbury, Rhyl, Carlisle, Leeds, Manchester, Nottingham, Exeter, Truro, Bristol, London, Birmingham, Llandrindod Wells and Newcastle-on-Tyne. It is anticipated that the aggregate attendance at these conferences will be upwards of 2,000 delegates.

It is claimed that if the proposals made by the Council to the Government and local authorities throughout the Kingdom had been acted upon at a time when the cost of building was one-third of what it is to-day the difference in expenditure in building would have meant the saving of scores of millions of pounds, and the health and happiness of the members of the community would have been greatly improved.

LAND FOR HOUSING.

Liverpool.

Mr. John D. Wallis, Official Arbitrator under the Acquisition of Land (Assessment of Compensation) Act, 1919, sat at St. George's Hall, Liverpool, to hear a claim against the Corporation of Liverpool by the Wilton Trustees, concerning the Corporation's compulsory acquisition, for housing purposes, of about 12¼ acres of land at Fazakerley.

Mr. William Thomson, auctioneer and estate agent, on behalf of the claimants, valued the land at 2s. 0d. a yard, or £7,567.

On behalf of the Corporation, Mr. F. J. Kirby, surveyor, said the land was at the extreme northern boundary of Liverpool, and had not been the subject of active development. It would be developed more quickly for domestic purposes than for commercial purposes. Rates and the high cost of building affected the value and the land was worth less to-day than in 1911. He detailed a valuation amounting to £3,828 8s. He submitted an alternative valuation on the basis of development by a builder amounting to £3,810 19s. 8d.; and another, on the assumption that the land had a commercial value, amounting to £3,911 5s.

The Official Arbitrator, who reserved his decision, has since awarded that the acquiring authority is to pay the owners the sum of £4,600; to pay interest at 5 per cent. from December 25, 1919, until payment of the compensation; and to pay the fees on the award. Each party is to pay its own costs.

Mr. Wallis, as Official Arbitrator, also heard a claim against the Corporation by Mr. C. H. Milbourn, in respect of the compulsory acquisition of about 16¾ acres of adjoining land at Fazakerley for housing purposes.

Mr. William Thomson, on behalf of the claimant, submitted a valuation of 2s. 6d. per square yard, or £10,245.

Mr. F. J. Kirby, on behalf of the Corporation, gave a valuation of £5,389. On the basis of development by a builder he valued the land at £5,373 10s.; and on the assumption that the land had a commercial value at £5,414.

The Official Arbitrator has awarded that the acquiring authority is to pay the owner the sum of £6,200; to pay interest at 5 per cent. from December 25, 1919, until payment of the compensation; and to pay the fees on the award. Each party is to pay its own costs.

Dartford.

Mr. Howard Martin, Official Arbitrator under the Acquisition of Land (Assessment of Compensation) Act, 1919, has issued his award in a claim by Mr. James Smith and Mr. Herbert Smith, as tenants, against the Dartford Rural District Council, concerning the Council's compulsory acquisition, for housing purposes, of 11 acres, 1 rood, 23 poles, or thereabouts, of farm land. The award is that the acquiring authority is to pay the claimants the sum of £132 and the claimants' costs and the hearing fee. At the hearing of the claim, which recently took place at Dartford, Mr. B. E. Waterman, auctioneer and surveyor, of Dartford, represented the claimants, and valued the compensation due to them at £359. On behalf of the Rural Council, Mr. A. B. Thornton, District Valuer for the Bromley district, submitted a valuation of £40.

The Official Arbitrator has also issued his award in a claim by Mrs. Mabel Annie Temple-Johnson, as owner, in respect of the Council's acquisition of this area of land. The award is that the acquiring authority is to pay the claimant the sum of £1,775 and the hearing fee and the claimant's costs.

At the hearing of the claim, Mr. Philip Champion, auctioneer and valuer, gave evidence on behalf of the claimant, and submitted a valuation of £3,360. Mr. A. B. Thornton, District Valuer, on behalf of the Rural Council, detailed a valuation of £881.

Devonshire War Memorial.

H.R.H. the Prince of Wales recently unveiled a war memorial at Exeter to the men of Devonshire who fell in the war. The memorial, which was designed by Sir Edwin Lutyens, R.A., takes the form of a slender tapering granite cross, erected in front of the Church of St. Mary Major and facing the west door of the Cathedral.

BOOKS.

Examples of Scottish Architecture from the 12th to the 17th Century. Edited by Messrs. F. Rowand Anderson, Thos. Ross, and W. T. Oldrieve. Edinburgh: George Waterston & Sons, Ltd.

There is a peculiar attraction in the architectural productions of the Middle Ages in Scotland; an attraction which is doubtless augmented by the romantic situations they occupy and by the warm tints of the stonework with which they are built, but which is in no small measure due to the general beauty and vigour of their design and construction. That the architectural treatment was largely influenced by foreign examples there can be no question, but it was none the less entirely subservient to the requirements of the country and the warlike character of its inhabitants. Apart, therefore, from such unusually exotic examples as Rosslyn Chapel, Scottish architecture, while receiving its influence from without, developed internally on lines which were at once national and distinct. This is clearly seen in such buildings as the cathedrals at Elgin, Aberdeen, and Glasgow, the abbeys of Melrose, Jedburgh, and Sweetheart, and the castles of Glamis, Craigievar, and Cawdor. The beautiful crypt of Glasgow Cathedral has no equal in Europe, and the church of the Abbey of Melrose in the 14th century must have been one of the most charming buildings in Britain, while Falkland Palace, Glamis Castle, and the ruined castle of Craigmillar are among the foremost examples of military and domestic architecture extant.

That these fine examples of Scottish architecture should be more widely known, especially to Scottish students, is of the first importance, and the publication of the series of examples, measured and drawn by advanced pupils, of which the first volume lies before us, is an attempt to accomplish this end. This portfolio illustrates in 18 plates three examples—Amisfield Tower, Dumfriesshire; Earlshall, Fifeshire; and Elcho Castle, Perthshire. The plates comprise plans, sections, elevations, and details, all carefully drawn to scale, and also photographic illustrations. Particularly useful are such roof sections with figured dimensions as that given on plate 7, while the details and sections of mouldings given on the last plate in each example are equally valuable. The stone jointing in the elevations is also carefully marked.

The guiding principle of all historical study in architecture should be that by a knowledge of the constructive methods of the past the student should be the better equipped to solve the problems of the present, and we cannot say that the volume before us, though most interesting from an archæological point of view, is particularly helpful in that respect. That most of the mediæval domestic buildings of Scotland have a semi-military character, and are therefore unsuitable as exact prototypes, is, of course, true, but a large number of them manifest principles of design, solutions of problems, disposition of parts, and elevations suitable to the climatic conditions of the country, which are constant in all ages and should be thoroughly grasped by all students. We venture to suggest a not too rigid adherence to alphabetical order in the publication of this series, and anticipate the second volume with pleasure.

The First Exhibition of the New Gallery of Graphic Art. By Alexander J. Finberg. London: The De La More Press. Price 2s.

The inauguration of yet another exhibition society reminds us how careful we ought to be in making claims on public support, and why we should adopt a modest attitude, picking our way, as it were, into public estimation. It is no longer possible to exploit our aims, which will be taken at their face value only. We cannot conjure with "movements" any longer. Public opinion outside of art circles and special interests is making itself felt, and will form its own judgment in spite of them. This is altogether a good thing, and the promoters of this new Society of Graphic Art would have been better advised if they had left it there. For the public would, in the end, have distinguished between what is vital and what is more to be accounted as the soil of art, which is dug in by time. That for the present we must accept the fact of a preponderance of the latter should not blind us to the good and significant work, attached to vital sources of inspiration, which struggles alongside of it. When looking at this exhibition it was not possible to find characteristics which established any preferential claims over other forms of expression, such as the art of the painter, and any attempt to do so has the appearance of special pleading, setting up a prejudice against its legitimate claims for public support. In the light of such a view the pamphlet which has reached us appears very unfortunate, though written no doubt with the laudable aim of doing justice to a new society.

We are as much opposed as the author to the excesses which have prevailed in recent years in the sphere of painting, but the prospects of graphic art are not furthered when, in order to show the superiority of black-and-white over colour, the author writes as he does on painting. To say that recent movements have "reduced the art of painting to the absurd," or that the public have come to regard "all decent feeling and conduct," as having "nothing to do with art," reminds us of those people who, seeing presented on the stage illicit amours, regard them as the whole of life, forgetting the majority of decently-lived, sensible lives of which the nation is really so largely made up. Mr. Finberg is sure that the world of art is upside down, when it is himself who needs placing back upon his feet. Nor is it, as our author declares, "a frivolous and corrupt taste to like colour." To have decried the painter's art in order to push this exhibition of black-and-white, which can sustain its own claims without such invidious assistance, does not seem fair. As a matter of fact, this exhibition, though interesting in many ways, established no claim for itself over the art of the painter, and it is a very poor service to both to try to do so. They have each their own field of expression—are we not weary of this setting of one art against the other by reiterating comparisons which do not apply and which are the worst sort of criticism? The Graphic Art Society may yet do useful work in consolidating the interests of black-and-white art. Disburdened of all this inapplicable and tiresome protestation, we can view this first exhibition with feelings of real interest In so large an exhibition there was naturally a large element of work which called for no special recognition, but there was fine work shown and it is for the public, on whom more than ever the responsibility now lies for the upholding of art, to exercise its judgment and direct its choice to what best represents the finer elements of artistic expression.

The Ideal and Legal Rent Book and Guide to the Rent Act, 1920. Compiled by T. I. Mardy Jones, F.R.E.S. Cardiff: William Lewis, Ltd. Price 6d. net.

Under the above title Mr. T. I. Mardy Jones has compiled a rent book which, we imagine, should prove acceptable to all who have to deal with house property affected by the Increase of Rent Act, and which, it is stated, has received the approval of the House Owners' Association and the Tenants' Defence League.

The rent book enables all particulars required by the Act to be entered in an intelligible form, and the compiler claims that its use will tend to obviate misunderstandings between landlords and tenants. The guide to the Rent Act is a marvel of conciseness, as it only occupies three pages of the cover to the rent book, and yet, so far as we have tested it, appears to contain a very lucid exposition of the main provisions of the Act. We regret that the various statements are not accompanied by references to the sections of the Act, for did space permit we think this would even enhance the value of this able summary of its provisions. We have not been able to verify all the paragraphs in detail, but we have only observed one point which appears to be not quite accurately stated, as the law now stands. Under "Conditions on which a tenant may be evicted" we find the following: "(*g*) Where a former tenant of the house gave up to 'join up' for the war and he chooses to return to the house he can claim possession." In the case Goodwin *v.* Rhodes this was so decided by the county court, but a Divisional Court (no doubt since this rent book was compiled) has reversed that decision (*Weekly Notes*, January 29), holding that the Act does not give the tenant this new right of action; it is the landlord who has to take proceedings if the premises are required for a former tenant after war service. This case will be found noted in our Legal Section for February 25. We only draw attention to this in case the compiler cares in future editions to consider this point.

Lead: Including Lead Pigments and the Desilverisation of Lead. By J. A. Smythe, Ph.D., D.Sc. London: Sir Isaac Pitman & Sons, Ltd. Price 3s. net.

This is a well-written, popular hand-book on the subject of lead, and deals with it briefly in all its branches. A certain historical interest is included which gives the book quite a colour of romance. Lead was one of the seven metals known to antiquity. If we want to form an idea of the date of its discovery it may be stated that it formed part of the booty taken from the Midianites as recorded in Numbers (xxxi, 22). The ancient laws in regard to mining were very quaint, and the Barmaster, whose duty it was to collect fines, was able to inflict punishment in default. The delinquent had to sit in the stocks, "twelve hours pining, with a paper on his back showing for what offence he sits there." Similar chastisement was awarded to "such persons as swear, curse." The author is very successful in illuminating the more technical parts with touches of this kind, and it is diverting to know that the Emperor Nero, according to Pliny, "for so the gods willed it, could never sing to the full pitch of his voice unless he had a plate of lead upon his chest." Particulars are given of the chemical changes involved in the extraction of lead, and the methods of the reverbatory and blast furnace, with accompanying diagrams. Desilverisation, the use of lead and alloys of lead, &c., to compounds such as letharge and red and white lead are explained. A subject of much importance affecting the public health, our cities, and the countryside is the effect of fumes and smoke, and the author tells us the story of the efforts to deal with it and the different methods attempted, with results still far from adequate. The softness of lead makes it a good material for modelling, and many objects such as statuary, vases, cisterns, hoppers to guttering, &c., indicate the great artistic value which has been found in the material. The author successfully includes within a narrative relieved by many human touches much technical information, given in such a form that the book has an interest not only for the student but also for the general reader.

Municipal Engineering. By H. Percy Boulnois, M.Inst.C.E., F.R.San.Inst., F.Inst. S.E. London: Sir Isaac Pitman & Sons, Ltd. Price 2s. 6d. net.

This volume is a very good review of the work of a municipal engineer, and Mr. Boulnois, who is a past-master on the subject, makes no secret of the difficulty he has experienced in compressing it into the limited space. The book is so far up to date that it gives, amongst other things, a brief description of the activated sludge process, the latest method of sewage disposal, and we would recommend the book to all those interested in civil and municipal engineering who wish to get a quick grasp of the subject.

Industrial Housing. By Clinton Mackenzie. New York: The Knickerbocker Press.

This work gives plans and illustrates buildings which have been designed and erected in America during the war period, amongst which will be found plans of special buildings built for the U.S. Ordnance Dept; canteen and other developments for the National Cash Register Co., at Dayton, Ohio; and a town centre and plant at South Clinchfield, Virginia.

THE BUILDING TRADE.

SCIENCE APPLIED TO BUILDING PROBLEMS.

PAINTS AND VARNISHES.

THE final lecture of the series dealing with "Science Applied to Building Problems" was given at the Northern Polytechnic Institute by Mr. F. W. Smith, B.Sc., A.I.C., and dealt with typical pigments and their possible adulterants. The lecturer adopted the classification of pigments used by Mr. J. Newton Friend, in his book, "An Introduction to the Chemistry of Paints."

The pigments obtained from hydrated oxide of iron, or ferric hydroxide (Fe_2O_3, $3H_2O$), were considered first. Ochres, siennas and umbers are, said the lecturer, all naturally occurring substances, the colours varying according to the sources from which they are obtained. An oxide of manganese is found associated with umbers and siennas, and this substance not only modifies the colour of the pigments but also affects their drying powers. The greater the proportion of manganese oxide the darker the colour and the greater the drying power.

Ochres are prepared commercially by a process known as "levigation," the finest and palest ochres being collected during the last stages of this process. Some ochre which was adulterated with chrome yellow was examined, and the presence of the lead salt demonstrated.

Anhydrous oxide of iron, which occurs naturally as red hæmatite, is made artificially either by heating ochres or iron sulphate. A sample of rouge was prepared by the latter method. The depth of colour depends upon the temperature to which the hydrated oxide is exposed.

Lead oxide is one of the most ancient of pigments and is now made artificially by the oxidation of metallic lead. A sample of red lead was exposed to a stream of hydrogen sulphide gas, and it immediately turned black. This demonstrated the disadvantage from which all lead pigments suffer, for the atmosphere in industrial centres and in the interior of rooms invariably contains hydrogen sulphide. A sample of red lead adulterated with iron oxide was examined, and the presence of iron was demonstrated by the familiar Prussian blue test.

Zinc oxide being non-poisonous and not being affected by sulphur is used for interior work where white lead would be affected. It is liable to adulteration with white lead. The pigment should dissolve completely in sulphuric acid. As lead forms, with picric acid, an explosive compound, zinc oxide was used during the war for painting shells charged with lyddite or picric acid.

Cobalt blue was prepared by the lecturer by heating alumina on charcoal with a few drops of cobalt nitrate. Cobalt green was prepared by a similar method, using zinc oxide in place of the alumina.

Vermilion or mercury sulphide is prepared from the naturally occurring sulphide called "cinnabar." This substance is roasted and metallic mercury is obtained from it. This mercury is mixed with sulphur and gently heated in an iron pot, and a black substance, known as "ethiops" is obtained. This substance is thrown, a little at a time, into earthenware pots fitted with lids and heated strongly, more ethiops being added from time to time during a period of about thirty-six hours. On cooling and opening the pots, vermilion is collected on the under side of the cover. Pure vermilion on heating should volatilise completely, leaving no residue.

The lecturer prepared typical sulphide pigments by adding hydrogen sulphide to solutions of salts of zinc, cadmium, lead, &c. The effect of hydrogen sulphide on lead pigments was examined. A piece of board was painted on one end with white lead and on the other end with zinc oxide. On exposure to hydrogen sulphide the zinc sulphide which was formed, being white, was not noticed. The black lead sulphide was, however, most obvious. The oxidation of this lead sulphide to the white lead sulphate by means of hydrogen peroxide was demonstrated:—

$$\underset{\text{(Black)}}{PbS} + 2O_2 = \underset{\text{(White)}}{PbSO_4}$$

Lead sulphate is made by the action o sulphuric acid on the acetate. It is not possible to form the sulphate directly from the metal, as the insoluble sulphate which is formed covers the surface of the metal and prevents the action proceeding.

Barium sulphate, or permanent white, which is sometimes used as an adulterant for lead sulphate, may be detected by the characteristic green colour which it imparts to the Bunsen flame.

The carbon blacks are most important, the best variety being prepared from natural gas. Lamp-black, however, is beautifully permanent.

Basic lead carbonate, although subject to the disadvantage of being discoloured by hydrogen sulphide, is very popular owing to its ability to induce saponification in oil. This is due to the presence of the hydroxide. Basic lead carbonate, or white lead, is made from metallic lead by allowing acetic acid vapours to play upon it in the presence of fermenting spent tan.

The basis of the chromatic pigments is potassium bichromate, which is made by the fusion of chrome iron ore with caustic potash and quicklime. The addition of potassium sulphate removes all the calcium, as the insoluble sulphate leaves the chromate in solution. Sulphuric acid converts this substance into the bi-chromate. Lead chromate in the presence of alkalis forms the basic chromate which darkens the colour.

Prussian blue is made by the addition of potassium ferrocyanide to ferrous sulphate which has been oxidised by means of nitric acid or bleaching powder. When dry, Prussian blue is apt to cake, so special oils are frequently necessary as a vehicle.

Ultramarine (the "lapis lazuli" of the ancients) is now prepared artificially. Below is a typical analysis:—

	Per cent.
Silica	35.8
Alumina	34.8
Soda	23.2
Sulphur	3.1
Calcium Carbonate . ..	8.1
	100.0

The greater the percentage of sulphur, the darker the colour.

Of the copper pigments, limewash is important and is prepared by the addition of milk of lime to a solution of copper sulphate in excess of ammonia.

Verdigris, or basic acetate of copper, is formed by the action of acetic acid on copper. In France the acetic acid is obtained from skins of grapes which have been fermented. In England wood vinegar is used.

Bremen blue, which is a mixture of copper carbonate and copper hydroxide, is affected by lime, and for this reason its use in connection with wall-papers is very undesirable.

The lakes, which are complex organic substances associated with an inorganic substance, may be derived from natural colours or from coal-tar colours. As an example of the first variety, carmine might be mentioned. This consists of cochineal and alumina and lime. The cochineal is obtained from the dried body of the female variety of an insect known as 'Coccus cacti."

Indigo is an organic substance which was formerly obtained from the leaves of a tree which grows in the East. It is made synthetically from a coal-tar product.

The process of drying a paint does not consist of driving off water. It is a process of oxidation, and, when linseed oil is used as a vehicle, linoxyn, an elastic solid, is produced, together with formaldehyde—carbonic acid and formic acid—showing that the process of oxidation is a complex one. Many substances assist this process, and it is now believed that the use of such substances is catalytic; that is, they merely help on the reaction without undergoing themselves any ultimate change.

Manganese and lead have very strong catalytic activity, but it is now claimed that a combination of lead and cobalt, or lead and manganese, gives the best results. Manganese, cobalt and lead are usually employed in the form of resinates, linoleates, oxides, acetates, tungstates, or borates.

Varnishes, which are used for protective or ornamental purposes, must be very carefully prepared by the addition of the heated oil (260 deg. C.) to the fused resin. Unless the conditions are exactly arranged the resin is not correctly associated with the oil and "blooming" results. "Blooming" appears also to result as the effect of moisture upon the varnish after it is applied. In this case, however, it is temporary. Pale varnishes may be impaired if the resin is heated to too great a temperature. Spirit varnishes are made with resins, using turpentine, methylated spirit or some similar solvent. If a little bichromate of potash is added to a water varnish just before use, the varnish is rendered almost waterproof.

ARTISTIC CONCRETE.

A VALUABLE addition to the series of booklets on the various uses of concrete, issued by the Concrete Utilities Bureau, has been made by the publication of "Concrete: Its Artistic Possibilities," No. 14 of the series. Various methods of colouring concrete have been tried with varying degrees of success, but perhaps the best, simplest, and cheapest results are obtained by the exposure of the aggregate on the surface. It is to this method that the booklet is chiefly devoted, and the excellent results that can be obtained by exposing the aggregates commonly used, such as gravel, flint, granite of various colours, and different coloured sands, are well illustrated by coloured plates. Exposed surfaces of concrete made with marble chippings are also illustrated in colour; these are, of course, more expensive, but the results obtained are excellent. Various methods of exposing the aggregate are described, and of these it is stated that the best is the removal of the film of mortar on the surface by brushing with an ordinary scrubbing brush or wire brush while the concrete is still green, *i.e.*, as soon as the forms can be removed without injury to the structure. Clean water is all that is usually required for the purpose if the concrete is not too hard, but if it is found that the colour of the aggregate is not fully brought out by this treatment a solution of hydrochloric acid diluted with three or four parts of water is recommended, taking care to remove the acid from the surface of the concrete immediately the desired result is obtained by well washing with water. Other means of removing the surface film of mortar are described, as also are methods of depositing surface layers of fine aggregate against walls built with common aggregates. The booklet is issued (gratis) by the Concrete Utilities Bureau, 35, Great St. Helens, E.C. 3, and we would recommend those interested in the improvement of the appearance of concrete to obtain a copy.

IRON PORTLAND CEMENT.

[COMMUNICATED.]

A TRADE pamphlet on Portland cement, given away at the recent Building Exhibition, has a section headed "Adulterated Cements," which opens with a quotation from the new British Standard Specification for Portland Cement: "No cement to which slag has been added or which has a mixture of Portland cement and slag will comply with this specification," and then goes on to describe the manufacture of iron Portland cement, with a warning that "such a cement should, therefore, in no circumstances be used."

As trade publications of this kind are sometimes widely read, it is necessary in the public interest to present the subject of iron Portland cement in a somewhat different light. First of all, it should be remembered that Portland cement is only one note in a chemical scale of lime cements varying in composition and quality from pure hydrate of lime up to complicated mixtures of lime, alumina, and silica compounds; and that although of such excellent and uniform quality it is not the best note of the scale for every purpose. Further, to remove prejudices, it should be noted that true Portland cement can be made, and is made, commercially, with iron-works' slag in place of the usual clay. In Germany there are four cements of the lime scale recognised; of these, iron Portland cement has been allowed since 1902 to be used indiscriminately with Portland cement in German Government work. It can best be described, indeed, as an improved Portland cement, superior in strength, and with the setting time under better control.

Iron Portland cement, shortly, is Portland cement clinker with which is ground up sufficient iron-works' slag to improve the strength and control the setting time, while keeping the sulphur content within the safe limit allowed by the Portland Cement Specification. When an "adulteration" results in all-round improvement the word somewhat loses its significance. The question will be asked, "Why does not every iron-master in Great Britain make cheap iron Portland cement for us instead of building a slag mountain?" The reply would be that almost every iron-master in the country could use his blast-furnace slag in making either iron Portland cement, or, if the composition of his slag will only permit it, ordinary Portland cement; but there is such a prejudice in England against anything that can be slandered as slag cement that iron-masters are afraid to make the venture. In Scotland, however, many thousands of tons of iron Portland cement have been made during the past few years; and it is being used as fast as it can be made.

Now, the prejudice against slag cement is not without foundation; there have been bad failures with it, chiefly owing to its high content of sulphur. But the high sulphur content in some slags does not appear in the finished cement. Having passed the point that it is safe to use iron Portland cement as distinct from slag cement, and advantageous to use it as distinct from ordinary Portland cement, there comes the difficulty that there is no separate British standard for the maker to work up to and the user to specify. This is a very considerable difficulty, especially to those users who are not in a position to know whether a cement of iron-works' origin marketed under a copyright name is a true iron Portland cement or merely a slag cement of indefinite composition. The easy refuge appears to be in "Portland Cement to the British Standard Specification"; but where there is money or time to be saved, before the setting up of that separate standard which is so obviously needed in Great Britain, it should be possible for the user to specify for himself, and the specification need only be that the cement shall comply with all the physical and chemical tests of the new British Standard Specification for Portland Cement, and that the proportion of added slag shall not exceed 30 per cent. of the whole—this is iron Portland cement.

BUILDING SURVEYORS' AND INSPECTORS' ASSOCIATION.

PROPOSED STATUTORY RECOGNITION.

THE first annual meeting of the Building Surveyors' and Inspectors' Association was held at the Manchester Town Hall on May 21.

After the Secretary's report dealing with the progress and financial position of the Association had been received, the Chairman, Mr. W. J. Stone, M.R.S.I., of Bootle, said he hoped to see started in the future either a series of lectures or papers dealing with the technical side of their profession. He did not think they could lift themselves to the dignity they should unless they did as other associations and discussed the various technical features connected with their work. Had the Association been established earlier, he saw no reason why it should not have taken part in the Government departmental inquiry into building by-laws, the minutes of evidence of which went to show the importance of the position of a building surveyor. The duties of a building surveyor were further represented by the Public Health and other Acts of Parliament.

The Association started, he said, in a small way in August last, and by January it was fully established. The development of the Association could best be judged on a county borough basis of 50,000 population; the Association's representation on such a basis was equivalent to about 93 county boroughs. The total area represented was about 22,000 acres; the representation by population was about 4¾ millions, and on a rateable value basis 25¼ million pounds, which showed the representative character of the Association when those figures were distributed over 32 towns. Looked at from the area basis point of view, the Association was well represented, having a Mersey-side, Manchester, Yorkshire, London, Potteries, and other districts; and it was also represented in Ireland.

One could say a great deal with regard to the need for the Association, and the consolidated effort that had been started. It was noticeable that the need existed and he was surprised that some step was not taken earlier to consolidate the profession. He had in his mind the issue of *The Builder* for May 20, which contained a report of the meeting of the Unification Committee of the Royal Institute of British Architects, which was engaged in narrowing the circle of admission to its Institute, and was about to apply to Parliament for powers which would give it the same professional standing as the legal and medical professions. That was something that concerned everyone of them. The R.I.B.A. was applying for these extensive powers of registration through an Act of Parliament with a view to controlling its relations with the building industry and public bodies. That was an example of what was going on in the architectural profession. There was a time when many building surveyors and inspectors stood a chance of taking up, say, a surveyorship with a rural or urban district, but he was afraid to-day that the tightness of the various professional bodies would make it almost prohibitive. The accountancy associations were doing likewise. They were preparing a bill which would increase their dignity, and would protect them from undesirables. It should improve the status of the building surveyor when the status of the architect was raised. He did not see any reason why something should not be done to register builders; it was doubtful whether the building industry would be successful until it was registered, or more efficiently controlled with a view to keeping out the undesirable element. They should get back to some extent to the Guild system, when the workman had a pride in the work he was engaged upon. He was sure there was no pride to-day, only that of getting a percentage.

There were in the Association academic and practical men, and he did not know of any reason why there should be any conflict between them. There was a tendency, he was afraid, to overlook the value of the practical man; but that was not right, because the practical men had many virtues which the academic man had not. There was ample room for both; a university man was able to carry a degree, but did that imply the university man was superior to other men? The practical man was better for the actual inspection and supervision of building work; he was more accustomed to the trade, and had considerable advantages without depreciating in any shape or form the high stage to which the academic man might reach. Many members of the Association were very highly qualified, and practically all had distinguishing qualifications.

The safety of the public depended largely upon the building surveyor, and the man who was conscientious carried considerable responsibility. This should be recognised by adequate salary and conditions of service. In addition, building surveyors had to prepare evidence for the law officers, and it was interesting to note that the legal gentlemen would have little subject matter if it were not for the expert and technical evidence that had to be given by the building surveyor. In the matter of reinforced concrete work, the London County Council by-laws provided for the district surveyors being paid a fee of 2½ times the ordinary schedule fee. If one compared the salaries that obtained on the housing schemes with those of many building surveyors it seemed that the time had come when they should have their salaries re-considered. Statutory recognition was the biggest point they would have to consider as time went on, and a case could be made out for warranting the Association in asking for, or proceeding to obtain, statutory recognition for building surveyors. The London County Council worked under its own Act, Willesden had its own Act, and Liverpool worked under a local Act. The time had arisen when they should take steps to obtain complete statutory recognition. Local influence from councillors was one of the most objectionable features that a building surveyor had to contend with, and he hoped that some steps would be taken to appoint a committee to go into the question of statutory recognition, and along with that the setting up of an efficient standard of qualification. They had little chance of appeal beyond that of a local authority. So far as Willesden was concerned the Act very clearly stated the salary that must be paid, but it was a salary that should never have appeared in any local Act. It was too low, and the qualifications asked for warranted a much larger salary. The N.A.L.G.O. was endeavouring to bring about the recognition of the local government officer on the basis of the civil service, with the same national recognition as civil servants. The improved tendency of technical education should help to bring about a higher type of building surveyor, and the Association should be stabilised with a view to the future rather than the importance of the present members. The strongest case was that of an increased responsibility with regard to the highly technical work which the building surveyor had to carry out. The London County Council had ruled out payment by salaries and was continuing to pay its surveyors by fees. He did not see any reason why they might not hope to get in touch with the London building surveyors, and in time link up and work with them.

The meeting proceeded to the election of officers for the ensuing year, and also the approval of the revised scale of salaries on a population basis, which was accepted unanimously and will be sent forward to the N.A.L.G.O. with a view to its presentation, along with others, to the National Whitley Council. The Association gave the necessary power for the appointment of committees with reference to the standard of qualification and the preparation of a case for statutory recognition.

BUILDING TRADE APPRENTICES.

Mr. T. Wheeldon (chairman of the Stafford After-care Committee) presided over a conference representative of builders and operatives held at Stafford last week. The meeting was convened by the Industrial Council for the Building Industry for the purpose of submitting a scheme for apprenticeship prepared by the Education Committee of the Council with the object of establishing committees, to be called "The Local Building Trade Apprenticeship Committee," in various districts.

Mr. Ford, representing the Education Committee of the Industrial Council, explained the scheme in detail, which, he said, would, if adopted, benefit the boy as a future craftsman, benefit the employer because he would get a better trained man, and would be for the betterment of the industry as a whole. The scheme would set up at various centres committees composed of equal representation, which would give advice to apprentices. Representation could be made to the local education authority, and if a certain course of training was thought to be wrong it could be set right. He felt sure that the successful craftsman of the future would have to specialise, and that could only be achieved by education. It was the unambitious boys who presented the real problem, and they must be made to attend evening classes. He thought all this could be done on the lines set out by the Committee. With regard to the post-apprenticeship period one of the aims of the scheme was to give the boys the best training possible, and open up the higher branches of the trade for them.

A resolution was passed to the effect that another conference be called, and in the meantime those present should submit their views on the scheme to the various bodies and parties whom they represented, and report to Mr. Ford.

At a meeting convened to consider the application in Hinckley of the scheme for apprentices adopted by the Industrial Council for the Building Industry, it was decided to adopt it, and a Committee was appointed to carry it through.

TRADE NEWS.

The Mayfair Window Cleaning and Decorating Co., Ltd. (9 and 10, Grantham-place, Park-lane, W.) inform us that they are not selling paint spraying machines, as stated in our issue for May 13, but are prepared to undertake painting, or other work which can be economically done by spraying, with the machines in their possession.

The London & Lancashire Insurance Co. held its fifty-ninth annual meeting in Liverpool on April 27. The report for the year shows that the fire premiums amounted to £3,668,249, the marine premiums to £2,669,515, and the accident premiums to £1,746,672. The aggregate premiums for the year were £8,084,436. After writing off £500,000 to cover depreciation, and paying a total dividend of 12s. per share, less income tax, the balance of £979,419 is carried forward to the next account. The reserve funds of the Company now amount to £6,464,329.

A Builder's Estate.

The late Mr. Joseph A. Gledhill, retired builder, of Southend-on-Sea, left estate valued at £12,794.

Balloon Shed for Spain.

According to the *Gaceta de Madrid* of May 12 tenders are invited up to June 4 for the construction of a balloon shed and workshop, for the Parque Aerostatico de Guadalajara. The maximum quotation admissible is 191,250 pesetas. A deposit is required of 9,562.50 pesetas. The conditions of tender can be seen at the Comandancia de Ingenieros, Calle de Serano 49, 1st floor, Madrid. United Kingdom firms interested in this and other contracts in Spain who are unrepresented in that country should apply to the Department of Overseas Trade, 35, Old Queen-street, Westminster, S.W. 1, for assistance in appointing a representative.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur :—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Accrington	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Altrincham	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Ashton-under-Lyne	2/2	2/2	2/2	2/2	2/2	2/3	2/2	1/10–1/10½		
Barnsley	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Barrow-in-Furness	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Barry	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Bath	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Bedford	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Birkenhead	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½		
Birmingham	2/2	2/2	2/2	2/2	2/2	2/3	2/2	1/11		
Bishop Auckland	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Blackburn	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Blackpool	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Bolton	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Bournemouth	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Bradford	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Bridgwater	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½		
Brighton	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Bristol	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Burnley	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Burton-on-Trent	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Bury	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Cambridge	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Cardiff	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Chatham	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/6		
Chelmsford	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Cheltenham	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Chester	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Chesterfield	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Colchester	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Coventry	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Crewe	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/8½–1/9		
Darlington	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Derby	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Doncaster	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Dudley	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Durham	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
East Glam. and Mon. Valleys	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Exeter	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/7		
Folkestone	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/7		
Gloucester	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/7		
Grantham	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Grays	2/2	2/2	2/2	2/2	2/2	2/2½	2/1	1/11		
Grimsby	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Great Yarmouth	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/6		
Guildford	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Halifax	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Harrogate	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Hartlepools	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Hastings	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/6		
Hereford	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/7		
Huddersfield	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Hull	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Ipswich	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Lancaster	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Leamington Spa	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Leeds	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Leicester	2/2	2/2	2/2	2/2	2/2	2/2½	2/2	1/11		
Lichfield	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Lincoln	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Liverpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½		
Llanelly	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
London	2/2	2/2	2/2	2/2	2/2	2/2½	2/1	1/11		
Loughborough	2/2	2/2	2/2	2/2	2/2	2/2½	2/2	1/11		
Luton	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Maidstone	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/6		
Manchester	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Mansfield	2/2	2/2	2/2	2/2	2/2	2/2½	2/1	1/11		
Merthyr Tydfil	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Middlesbrough	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Newcastle-on-Tyne	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Newport, Mon.	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Northampton	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Norwich	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Nottingham	2/2	2/2	2/2	2/2	2/2	2/2½	2/2	1/11		
Oakham	1/11	1/11	1/10	1/11	1/11	1/11	1/11	1/8		
Oldham	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Oxford	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Plymouth	1/11	1/11	1/11	1/11	1/11	1/11	1/10	1/8		
Pontypridd	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Portsmouth	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Preston	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Reading	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Rochdale	2/2	2/2	2/2	2/2	2/2	2/3	2/2	1/10–1/10½		
Rochester	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/6		
Rugby	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
St. Albans	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/6		
St. Helen's	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Scarborough	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Sheffield	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Shrewsbury	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Southampton	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Southend-on-Sea	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/9½	1/7		
Southport	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
South Shields	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Stockport	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Stockton-on-Tees	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Stoke-on-Trent	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
Stroud	1/10	1/10	1/10	1/10	1/10	1/10	1/9½	1/7		
Sunderland	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Swansea	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Taunton	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Torquay	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Wakefield	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Walsall	2/0½	2/0½	2/0½	2/0½	2/0½	2/1½	2/0½	1/9½		
Warrington	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
West Bromwich	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Wigan	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/10–1/10½		
Windsor	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/7		
Wolverhampton	2/2	2/2	2/2	2/2	2/2	2/2	2/2	1/11		
Worcester	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		
York	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9½		

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue various revisions have been made.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	5 1 6

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons	3 17 0	Best Blue Pressed Staffordshire	11 19 0
Best Stourbridge Fire bricks	12 14 0	Do. Bullnose	12 9 0
		Blue Wire Cuts	10 1 6

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers	29 10 0	D'ble Str'tch'rs	38 0 0
		D'ble Headers	35 0 0
		One Side and two Ends	39 0 0
Headers	29 0 0	Two Sides and one End	40 0 0
Quoins, Bullnose and 4½in. Flats	36 0 0	Splays and Squints	37 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	17 6	per yard,	delivered 2 miles radius Paddington.
Pit Sand	22 9	" "	
Thames Sand	22 6	" "	
Best Washed Sand	22 6	" "	
¾ in. Shingle for Ferro-Concrete	22 0	" "	
¼ in. " "	23 0	" "	

Per ton, delivered in London area.

	£ s. d.		£ s. d.
Best Portland Cement	4 7 6		4 13 0

80/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above		10 0
Best Ground Blue Lias Lime	3 12 6	at rly. depot.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 74s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 44s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road wagons at above stations, per ft. cube	5 0½

White basebed, 3d. per ft. cube extra.

NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

YORK STONE, BLUE—*Robin Hood Quality.*

	s. d.
Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	14 5
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	9 0
6 in. rubbed two sides, ditto ..... "	10 1
3 in. sawn two sides slabs (random sizes) "	3 11
2 in. to 2½ in. sawn one side slabs (random sizes) ..... "	2 5
1½ in. to 2 in. ditto, ditto ..... "	2 0

HARD YORK—

Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	9 3
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	8 6
6 in. rubbed two sides ditto ..... "	10 4
4 in. sawn two sides slabs (random sizes) "	4 11
3 in. ditto, ditto "	4 0
2 in. self-faced random flags .. Per Yard Super	12 2

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	60 0	per standard
4 × 9	55 0	"
4 × 8	45 0	"
4 × 7	44 0	"
3 × 8	35 0	"
3 × 7	32 0	"
2½ × 7	32 0	"
3 × 6	30 0	"
3 × 11	55 0	"
2 × 11	55 0	"
3 × 9	50 0	"
2½ × 9	50 0	"
3 × 4½	33 0	"
3 × 4	32 0	"

PLANED BOARDS.

1 × 11	60 0	"
1 × 9	55 0	"

PLAIN EDGE FLOORING.

Inches		
¾	26/-	per square
¾	30/-	"
1	35/-	"
1¼	44/-	"
1½	52/-	"

TONGUED AND GROOVED FLOORING.

Inches		
1	35/6	per square
1¼	44/6	"
1½	52/6	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	22/-	per square
¾	27/-	"
1	36/-	"

BATTENS.

Inches	s. d.	
¾ × 2	3 6	per 100 ft.

SAWN LATHS.

Per bundle	0 4	9

Dry Wainscot Oak, per ft. super, as inch	0	3	6 to	0	4 0
¼ in. do. do.	0	3	0 ..	0	—
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0	2	6 to	0	3 0
Cuba Mahogany	0	4	0 to	0	4 6
Teak (Rangoon, Moulmein or Java), per load	75	0	0 to	85	0 0
American Whitewood planks, per ft. cube	0	18	0 to	1	4 0
Best Scotch Glue, per cwt.	10	0	0 ..	—	
Liquid Glue, per cwt.	5	8	0 ..	6	15 0

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	56 10 0
" " "	22 by 12	46 0 0
First quality "	22 by 11	42 10 0
" "	20 by 12	42 0 0
Best Blue Portmadoc	20 by 10	36 10 0
" "	18 by 10	29 10 0
First quality "	18 by 9	24 5 0
" "	16 by 10	22 15 0
" "	16 by 8	18 0 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	7 15 0
Ditto hand-made ditto	8 10 0
Ornamental ditto	7 7 6
Hip and valley tiles (per dozen)	0 15 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	24 4 0
Plain Compound Girders	26 8 0
" Stanchions	28 12 0
In Roof Work	33 0 0

WROUGHT-IRON TUBES AND FITTINGS—(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

	Tubes. ⅛" to 2".	Tubes. 2¼" to 6".	Fittings. ⅛" to 2".	Fittings. 2¼" to 6".
Gas	—10	—15 ..	—17½	—25
Water	Net	— 6½ ..	—12½	—22½
Steam	+11½	+ 3½ ..	— 7½	—20
Galv'd Gas	+10	+ 5 ..	—10	—17½
" Water	+22½	+16½ ..	— 5	—15
" Steam	+35	+27½ ..	Net	—12½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6 fts.	6 4	4 6	5 5
2½ in. "	7 3½	4 11½	6 9
3 in. "	9 0½	5 5	8 1
3½ in. "	10 0	6 9	9 5½
4 in. "	10 11½	7 8	10 9½

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	5 6	3 2	4 0
2½ in. " "	6 0	3 6	4 10
3 in. " "	7 3	4 4	5 6
3½ in. " "	8 9	5 2	7 6
4 in. " "	9 9	6 3	9 3

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. per yd.: 4 in., 13/-. .. 5 in., 16/6. .. 6 in., 19/11.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common Bars	23 0 0	to	24 0 0
Staffordshire Crown Bars good merchant quality	24 0 0	..	25 0 0
Staffordshire "Marked Bars"	30 10 0	..	32 10 0
Mild Steel Bars	20 0 0	..	21 0 0
Steel Bars. Ferro-Concrete quality, basis price	20 0 0	..	21 0 0
Hoop Iron, basis price	29 0 0	..	30 0 0
" Galvanised	43 0 0	..	45 0 0
Soft Steel Sheets, Black—			
Ordinary sizes to 20 g.	27 0 0	..	29 0 0
" " " 24 g.	28 0 0	..	30 0 0
" " " 26 g.	30 0 0	..	31 0 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—			
Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	35 0 0	..	36 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	36 0 0	..	38 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	38 0 0	..	40 0 0
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9ft. 20 g.	28 0 0	..	29 0 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	29 0 0	..	30 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	31 0 0	..	33 0 0
Sheets Galvanised Flat, Best quality—			
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	38 0 0		39 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	39 0 0	..	40 0 0
Best Soft Steel Sheets, 26 g.	40 0 0	..	41 0 0
Cut Nails, 3in. to 6in.	33 0 0	..	34 0 0

(under 3in. usual trade extras.)

LEAD, &c.

Delivered in London.

	£ s. d.		£ s. d.
LEAD Sheet, English, 4 lb. and up	36 10 0	..	—
Pipe in coils	37 0 0	..	—
Soil Pipe	39 10 0	..	—
Compo pipe	40 10 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	20	0 0	.. —
Do., ex country, carriage forward ..... per ton	21	0 0	.. —

COPPER—		
Strong Sheet .... per lb.	0 2 3	.. —
Thin " .... "	0 2 4	.. —
Copper nails .... "	0 2 3	.. —
Copper wire .... "	0 2 4	.. —
TIN—English Ingots "	0 1 10	.. —
SOLDER—Plumbers' "	0 0 11	.. —
Tinmen's "	0 1 2	.. —
Blowpipe "	0 1 4	.. —

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	4½d.	32 oz. fourths	10½d.
" thirds	5d.	" thirds	1/-
21 " fourths	6½d.	Fluted, Obscured and	
" thirds	7½d.	Enamelled Sheet.	
26 " fourths	8d	15 oz.	7d.
" thirds	9½d.	21 "	9d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	5½d.
⅜ Rough rolled	6½d.
½ Rough rolled	7½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7½d.
Ditto, tinted	9½d.
Rolled Sheet	6½d.
White Rolled Cathedral	6½d.
Tinted do.	7½d.

Cast Plate is ½d. extra on the price of rough rolled.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil in pipes ..... per gallon		0 3 4
" " " in barrels .... "		0 3 5
" " " in drums .... "		0 3 6
Boiled " " in barrels .... "		0 3 9
" " " in drums .... "		0 3 10
Turpentine in barrels ..... "		0 3 3
" in drums (10 gall.) .. "		0 3 6
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		58 15 0
GENUINE WHITE LEAD PAINT—"Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots ..... per ton delivered		80 15 0
Red Lead, Dry (packages extra) .. per ton		42 0 0
Best Linseed Oil Putty ..... per cwt.		0 18 0
Filocol ..... per cwt.		0 18 0
Size. X D Quality ..... fkn.		0 5 0

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish ..... Outside	0 15 0
Fine ditto ..... ditto	0 17 2
Fine Copal ..... ditto	1 1 6
Pale Copal ..... ditto	1 2 6
Pale Copal Carriage ..... ditto	1 4 6
Best ditto ..... ditto	1 14 6
Floor Varnish ..... Inside	0 19 0
Fine Pale Paper ..... ditto	0 18 0
Fine Copal Cabinet ..... ditto	1 2 6
Fine Copal flatting ..... ditto	1 0 6
Hard drying Oak ..... ditto	0 18 0
Fine Hard drying Oak ..... ditto	0 19 0
Fine Copal Varnish ..... ditto	1 0 6
Pale ditto ..... ditto	1 2 6
Best ditto ..... ditto	1 14 6
Best Japan Gold Size	0 12 6
Best Black Japan	0 18 0
Oak and Mahogany Stain (water)	0 17 6
Brunswick Black	0 11 9
Berlin Black	0 16 6
Knotting (patent)	1 16 0
French and Brush Polish	1 8 0
Liquid Dryers in Terebine	0 13 6
Cuirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

[*Note.*—These prices have been revised.—Ed.]

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	19	0
Add if in clay	" "	1	10
Add for every additional depth of 6 ft.	" "	1	4
Planking and strutting to trenches	per foot super	0	7
Do. to sides of excavation, including shoring	" "	1	4

CONCRETOR.

Portland cement concrete in foundation 1 to 6 ..	per yard cube	51	6	
Add if in underpinning in short lengths	" "	9	6	
Add if in floors 6 in. thick	" "	3	10	
Add if in beams	" "	4	9	
Add if aggregate 1 : 2: 4	" "	14	3	
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	3	

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	48	5	0
Add if in stocks	"	11	17	6
Add if in Staffordshire blues	"	32	15	6
Add if in Portland cement and sand	"	4	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat strucks or weathered joint....	" "	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	0	11½
Axed in stocks	" "	0	1	11
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	8

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	6
Setting ordinary register grates and stoves	each	1	2	6
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	6	5	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	8	0
Three-quarter-inch vertical damp course	" "	14	3
One inch on flats in two thicknesses....	" "	12	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	6

MASON.

York stone templates fixed	per foot cube	19	9
York stone sills fixed	" "	31	6
Bath stone and all labour fixed	" "	15	0
Portland stone fixed	" "	23	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails....	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	8	6
Do. joists	" "	9	6
Do. roofs, floors and partitions	" "	10	8
Do. trusses	" "	12	10

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	54/-	73/-	90/-	93/-

		s.	d.
Flat centering for concrete floor, including struts or hangers .. "		64	6
Do. to beams	per ft. sup.	1	9
Centres for arches	"	2	3
Gutter boards and beams....	"	1	8

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		74/-	94/-	108/6
Do. tongued and grooved	"		80/-	100/-	114/-
Do. matchings	"	66/6	81/-		
Moulded skirting, including backings and grounds	per ft. sup.	2/3	2/6	3/-	3/6

SASHES AND FRAMES.		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	11
Two Do. Do. Do.	" "	2	4½
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size....	" "	5	3

DOORS.		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/6	2/9	2/11
Four-panel Do.	"	2/10	3/2	3/5
Two-panel moulded both sides	"	3/2	3/5	3/8
Four-panel Do. Do, ...	"	3/6	3/9	4/-

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	21	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	2/1	2/3	2/6
Deal shelves and bearers	"	1/10	2/-	2/1
Add if cross tongued	"	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	3/2	3/10	4/5	—	—
Deal strings wrot in both sides and framed	4/3	4/6	—	—	—

		s.	d.
Housings for steps and risers	each	0	11½
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4½
Sash fasteners	11½d.	Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and	
Casement stays....	1/2	making good	19/-
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	26	0
Plain compound girders	"	29	0
Do. stanchions	"	32	0
In roof work	"	37	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints ..	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do. ..	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	59	0
Do. Do. in flats	"	55	0
Extra labour and solder in coated cesspools	each	7	4
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	10½
Copper nailing	" "	0	7

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	11d.	1/7	1/10	3/3	4/-	
Do. service	"	1/6	2/-	2/4	3/8		
Do. soil	"						6/6
Bends in lead pipe	each					3/5	8/7
Soldered stop ends	"	1/3	1/9	2/2	3/-	3/8	
Red lead joints	"	11d.	1/-	1/4	2/-	2/6	5/1
Wiped soldered joints	"	3/-	3/8	4/3	5/2	6/10	10/3
Lead traps and cleaning screws	"				15/4	20/6	
Bib cocks and joints ..	"	7/1	10/8	17/1	45/6		
Stop cocks and joints	"	17/1	19/-	28/6	71/3		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	2
Do. Do. Sirapite	" "	3	7
Do. Do. Keen's	" "	4	9
Add sawn lathing	" "	1	11
Add metal lathing	" "	3	4
Portland cement screed	" "	2	9
Do. plain face	" "	4	6
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	7

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	4
26 oz. Do.	" "	1	7
Obscured sheet	" "	1	9
¼ in. rolled plate	" "	1	0
¼ in. rough rolled or cast plate	" "	1	1
¼ in. wired cast plate	" "	1	7

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	5
Knotting and priming	" "		11
Plain painting 1 coat	" "	1	5
Do. 2 coats	" "	2	3
Do. 3 coats	" "	3	0
Do. 4 coats	" "	3	10
Graining	" "	2	10
Varnishing twice	" "	2	4
Sizing	" "	0	4
Flatting	" "	0	9
Enamel	" "	1	11
Wax polishing	per foot sup.	0	10½
French polishing	" "	1	8
Preparing for and hanging paper	per piece	2/- to 5/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C for Parish Council.

AMERSHAM.—Plans passed by R.D.C.: House, Bull, lane, Chalfont; alterations to cottages, Stone Dean-Chalfont; bungalow, Orche Hill-avenue, Chalfont St. Peter; bungalow, Stanley-hill, Amersham; kennels, Amersham; bungalow, Chalfont St. Peter; garage and store-room, Chestnut-lane, Amersham.

BARNES.—Plans passed by U.D.C.: Six houses, Westmoreland-road, for Mr. Alfred Harvey; house, Sheen Common Drive, Mortlake, for Mr. E. J. Partridge; shed, 61, Lower Richmond-road, for Mr. F. H. Cowley.

BARNSLEY.—The Ministry of Health has sanctioned a loan of £1,000 for alterations to police offices, and has also approved in principle of a scheme for the construction of a new main outfall sewer to serve the north of the borough, estimated to cost £17,387.—Plans passed: Electricity department, sub-station, Hall Balk-lane; Carters' Knottingley Brewery Co., Ltd., alterations and additions to Providence Inn, Park-road; E. W. Dobson, garage, Pogmoor; R. F. Pawsey, alterations and additions to farm buildings, Hall Balk-lane; A. Haigh, dwelling-house, Park-street.

BELFAST.—Plans passed:—Premises, Dublin-road, for William Willis; store, Donegall-road, for McKee Bros.; shop and offices, North-street, for M. Burton; alteration to premises, North-street, for W. Dobbin & Co.; boundary wall, store and alterations to dwelling house in Woodstock-road, W. J. Mawhinney; alterations to shops and dwelling-houses, Lisburn-road, for W. Willis; alteration to premises, Callender-street, for J. K. Wilson & Co.; two houses, Duncrue-street, for T. Dixon & Sons; rebuilding shop and dwelling-house, Old Lodge-road, for Mrs. M. Murphy; additional story to premises, Federation-street, for the Belfast Co-operative Society; conversion of dwelling-house into shop and store, Beersbridge-road, for J. L. Stewart; additions to factory, Mornington-street, for N. Duncan; additions to hall, Wansbeck-street, for W. H. Houston; alterations to club rooms Albertbridge-road, for the Ulster Unionist Labour Association; additions to house, Castlereagh-road, for W. McCall; alterations to shop and store, Dublin-road, for W. Willis; additions to factory, Springfield-road, for the Springfield Factory.

BEXHILL.—Plans passed by T.C.: House, Buckhurst-road, by Mr. J. E. Maynard for Miss Powell; two houses, Warwick-road, by Mr. J. E. Maynard for Mr. R. C. Maddock; bungalow in Penland-road, by Mr. J. R. Wall for Mr. C. Sounes; bungalow residence, "The Down," by Mr. G. H. Gray for Capt. T. H. Gray; four houses, Egerton-road, by Mr. J. B. Wall for Mr. E. Wabb; addition to Ancaster Gate, Dorset-road, by Mr. G. H. Gray for Miss Fletcher; bungalow, Collington Rise, by Mr. G. H. Gray for Mrs. B. Strahan; garage adjoining "The Cottage," Norman's Bay, by Messrs. J. Evans & Co.

BLACKPOOL.—Plans passed by Building Committee: A. E. Ellis, new street and sewer, St. Annes-road; Midgley & Hardy, ten houses in St. Stephen's-avenue and Holmfield-road; Lawrence & Co., two houses, Second-avenue, South Shore; Thos. Hill, two houses, St. Annes-road; Wm. Yates, six houses, King Edward-avenue; R. A. Thompson, two houses, Lytham-road; Midgley & Hardy, four houses in St. Stephen's-avenue and Richmond-place; John Holt, one house, Queen's Drive, North Shore; E. Bunce, one house, Whalley and Westminster-roads; A. Cookson, two bungalows, Bispham-road.

BRADFORD.—The Ministry of Health has given sanction to the B.G. carrying out alterations at Bowling Institution if the cost does not exceed £2,200.

DONCASTER.—Twelve sets of plans have been submitted to the representatives of authorities affected by the Doncaster Coalfield Town Planning Scheme. It includes a new circular road of an irregular character, with a three to five miles' radius of the centre of Doncaster.

DUMBARTON.—The Dean of Guild Court has passed plans for the erection of a large shop in the vicinity of the new Dumbarton housing scheme by Dumbarton Co-operative Society.

EDINBURGH.—A scheme for the widening of the viaduct between the Colinton and Lanark roads, which it is estimated will cost between £12,000 and £14,000, has been approved by the Streets and Buildings Sub-Committee of the T.C. The viaduct is 360 ft. in length, and is divided into eight arches, each with a span of 30 ft. The carriage way at present has a width of 14 ft. 10 in., while on one side there is a narrow footpath less than 3 ft. wide. It is proposed to widen to a distance of 30 ft. between the parapets, with a carriage way of 20 ft. 3 in., and a footpath of just under 5 ft. on either side.

ELLAM.—The Justices have passed plans for alterations to the "Royal Oak" public house, Newingreen.

GLASGOW.—The plans for the erection of another picture theatre have been passed by the Dean of Guild Court. The following linings were also granted:—McDonalds, Ltd., 21, Buchanan-street, to make alterations to buildings in Argyle and Mitchell-streets; William M'Grelis, dairyman, Ruthven-lane, off Byres-road, to reconstruct a store in Ruthven-lane; Peter H. Cossar, electrical engineer, 135, Bath-street, to erect a temporary hut for Boy Scouts at the corner of Shawmoss and Boleyn-roads, Pollokshields; Allan, Ure & Co., iron founders, 355, Keppochhill-road, to erect an addition to moulding shop at that address; Glasgow Parish Council, 266, George-street, to erect a fireproof room for cinematograph at Stobhill General Hospital, Springburn; Mercantile Chambers, Ltd., 175, West George-street, to alter office buildings at 53, Bothwell-street; Alexander Anderson, plumber, 24, Regent-Moray-street, Overnewton, to make alterations and additions to subjects in Southbrae Drive and Anniesland-road; Mann, Byars & Co., Ltd., 21, Glassford-street, to make alterations to shop windows in Glassford-street, Argyle-street, and Virginia-street; James Graham, 29, Rowallan-gardens, Broomhill, to make an extension to picture house in Wellfield-street; John Woyka & Co., Ltd., timber merchants, 241, Govan-street, to erect a timber shed at Maxwell-road, Shieldhall, Govan; Harry Burrows, 75, Waverley-gardens to make alterations for picture house, in Parliamentary-road; James Hinshelwood, 12, Kerr-street, N.W., and others, elders of the Church of God in Glasgow, 72, Maitland-street, to erect an Army hut for mission hall at London-road.

GOSPORT.—Plans passed by U.D.C.: Additions to No. 11, St. Mark's-road, Capt. Dugmore; house, Harding-road, E. Tutte; garden room, Spring Garden-lane, Miss Nicholson; house, Testcombe-road, Miss Lapthorn.

HANDSWORTH.—Mr. M. G. Weekes, M.Inst.C.E., has held an inquiry with respect to an application of the U.D.C. to borrow £5,560 for the purpose of the making and laying of sewers and the enlargements of the present sewerage works at Coisley Hill.

HASTINGS.—Plans passed by T.C.: Mr. W. H. Overton, for Mr. F. Heilbronn, alterations at 19, Aymer-road; Boniface & Son, for Mr. Goodwin, alterations at 33, Holland-mews; Mr. A. Chadwell, for Mr. G. Forfar, alterations at 2, Goldstone-street; Mr. R. Tomlinson, conversion into flats of 39, Medina-villas; Mr. A. H. Lainson, for Mrs. Sidney, alterations at 65, St. Aubyns; Mr. C. Boast, for Mr. R. Berger, addition to 18, Cambridge-road; Mr. A. Carden, for Mr. F. Carwardine, a house, Modena-road, East side; Burdwood & Dunt, for Mr. W. J. Grimes, two bungalows, Tandridge-road, East side; Denman & Matthews, alterations, 29, Brunswick-place, and Mr. G. M. Jay, two houses, Gladys-road.

HUNSTANTON.—Plans passed: Additions to cottages for Mrs. Walter Robinson; garage, for Mr. E. Southgate.

IRVINE.—The Dean of Guild Court has passed plans of alterations which Mr. Albert Strong proposes to carry out on his billiard-rooms in West-road for the purpose of converting them into a picture house to accommodate 900 persons. The estimated cost is about £2,200.

KEIGHLEY.—The R.D.C. has approved of plans by the Surveyor for replacing a portion of the existing water main in the Ilkley-road, Morton Banks.

KENILWORTH.—Plans passed by U.D.C.: By Mr. Wenlock, bungalow in Borrowell-lane; by Messrs. Lucas, additions to the "White Lion"; alterations to a shop in the Square, for Mr. John Hall.

LONDON (Finsbury).—Sanction has been given by the Justices to plans for alterations at the Tufnell Park Hotel, 162, Tufnell Park-road, the "Bricklayers Arms," 94, Victor-road, and the "Green Man," 32, Halliday Walk, Ball's Pond-road.

LONDON (St. Marylebone).—The tender of Messrs. Patman & Frotheringham, London, N., has been accepted for the re-construction of the Marylebone-lane Police Station.

LONDON (Wandsworth).—Plans passed by B.C.:—Messrs. Chapple & Utting, six houses, Hepworth-street, Streatham; garage adjoining Streatham Fire Brigade Station, Mitcham-lane; by Messrs. Holloway Bros. (London), Ltd., sixty houses in roads Nos. 3 and 4 on the Magdalen Park Estate, Springfield; by Messrs. E. & A. Wates, eleven houses in Fontaine-road, Streatham; by Messrs. Dowsett & Jenkins, Ltd., (i) water closets and lavatory accommodation at the Girls' High School, Wavertree-road, Streatham; (ii) drainage of site for garage in Ockley-road, Streatham; by Mr. F. R. Goodall, alterations and additions to sale rooms, Sternhold-avenue, Streatham; by Mr. G. Warren, garage at 6, Westover-road, Springfield by Mr. T. Parr, redrainage of 19 and 20, Broad Hinton-road, Clapham North; by Mr. J. H. Jee, redrainage of 43 and 50, Sefton-street, Putney; by Mr. C. Midmer, garage at 20, The Pavement, Clapham North; by Mr. W. Shute, redrainage of 6, Werter-road, Putney; by Mr. G. S. Hearn, redrainage of 13 and 15, Lower Park Fields, Putney.

LOWESTOFT.—Plans passed: The Anglo-American Oil Co., garage, boiler-house, and can washing shed, Harbour-road; Beckett & Rivett, additional offices, Milton-road; Mrs. W. Meal, bungalow, Chestnut-avenue; the National Provincial and Union Bank of England, Ltd., extension of offices, Surrey-street; and Mrs. W. Catchpole, pair of semi-detached cottages, Walmer-road.

MANSFIELD.—Plans passed by T.C.: Four houses, George-street, for the Westfield Building Co.; motor garage, Westfield-lane, for Mr. J. Gretton; extension to club premises, Victoria-street, for Mr. F. J. Tomlinson.

NEW ROMNEY.—Plans passed: Garage at Littlestone, for Mr. Thurlow Finn.

OXHOLME.—Plan passed: Workmen's club at Keadby.

PAISLEY.—The Renfrewshire Education Authority have been granted permission to erect a two-flatted building at the rear of Paisley Grammar School, estimated to cost about £10,000; Messrs. Clark & Co. (Limited), Anchor Thread Works, have been granted permission to erect a medical inspection room at their works.

SHIREBROOK.—Mr. E. Dudley, F.S.I., an Inspector of the Ministry of Health, has held an inquiry at the Shirebrook Institute into the application of the Parish Council for sanction to borrow £2,000 for the acquisition of six acres of the Ashbourne Farm and buildings for the purposes of a recreation ground.

SWANSEA.—Plans passed by T.C.: Two houses, Gorse-road, for Mr. Mark Adams; additions, Ravenhill, for Dr. McRichie; additions to slaughterhouse, Swansea-road, Waunarlwydd, for Mr. Thomas Morgan; two houses, Swansea-road, Dunvant, for Messrs. C. Cole & W. C. Nicholas; one house, Cecil-street, Manselton, for Mr. G. Davey; additions to workshop, Neath road, Morriston, for Mr. J. G. Howells; alterations, Main-road, Mumbles, for Mr. Wren Harris; one house, Trewyddfa-road, for Mr. D. Davies; additions, Clydach road, Clydach, for Mr. I. Norton; garage, Derwen Fawr-road, for Mr. S. E. Watson; additions, Ravenhill-road, for Mrs. L. B. Trotman; stables, 48, Clydach-road, Morriston, for Mr. Jos. Hynam; garages, Glanmor-crescent, for Mr. I. Evans; additions, Kingston-road, for Mr. Wm. Evans; one house, Derwen Fawr, Blackpill, for Mr. J. S. Brown; workrooms, 97, Mansel-street, for Mrs. Strutton; new road, Limeslade, for Mr. J. Smolden; additions, "St. Donats," Clyne Common, for Mr. Thornett; additions, "Lamb and Flag" public house, Swansea-road, Waunarlwydd, for Messrs. Buckleys Breweries Co.; oil tanks, &c., Hafod Siding, for Shell Mex, Ltd.; additions, 7, Castle-square, for Messrs. D. C. Jones & Son.

TENTERDEN.—Plans passed by R.D.C.:—Bungalow at Woodchurch, for Mr. Howse; Army hut at Wittersham, for Mr. W. H. Addy, and bungalow at Rolvenden, for Mr. H. E. Taylor.

THORPE.—At the Norwich Consistory Court the Rev. H. Knowles applied for a faculty for the erection of a war memorial cross of Portland stone at the south-east corner of the churchyard of St. Matthew, Thorpe Hamlet. Citation was ordered to issue.

UPPINGHAM.—The tender of Mr. Webster, of Guilsborough, for the erection of houses at North Luffenham, Barrowden, Morcott, Seaton, Wing and Preston have been recommended by the Housing Committee of the R.D.C. to the Commissioner for acceptance.

WESTMORLAND.—A letter, together with plans, &c., has been addressed to the Westmorland C.C. from Mr. G. Noble Fell, A.M.I.C.E., of London, asking for the approval of the Council to a proposed scheme for a light railway from Ambleside to Keswick, via Grasmere, Dunmail Raise and Thirlmere. Application for the approval of the proposal has also been made to the Parliamentary Committee of the Cumberland County Council, and that body has directed the Clerk to apply for further particulars.

*See also our List of Contracts, Competitions, &c.

FIRES

BRISTOL.—A fire has occurred at 27, Stokes Croft, occupied by Mr. Baxter.

CORSHAM.—The premises of Neale & Gough, brush manufacturers, have been destroyed by fire.

EDINBURGH.—About £10,000 damage has been caused by fire at St. Margaret's Engine Works, near Edinburgh, owned by the North British Railway Co.

GREENWICH.—Damage estimated at about £1,000 has been caused by a fire in the public-house occupied by Mr. T. O. Rennie at 8, Cartsburn-street.

LYTHAM.—A fire of a serious character has occurred at the office of the Lytham "Standard."

PERTHSHIRE.—The mansion house of Blair Drummond, beautifully situated in the Monteith district of Perthshire, was destroyed by fire recently, the damage being estimated at £90,000. The house, which was a magnificent building, was erected forty years ago by the late Colonel Home Drummond.

TOTTENHAM.—A fire broke out in the large boot factory of Messrs. A. & W. Flatan & Co., Tottenham, on Saturday, and the main building was completely destroyed.

An Inter-Directorate Golf Match.

A golf match which was played at St. George's Hill Golf Club, Weybridge, on May 12, between the Directors of Messrs. Burt, Boulton & Haywood, Ltd., the well-known timber merchants and tar distillers, and the Directors of Messrs. Robt. Ingham, Clark & Co., Ltd., varnish manufacturers, was probably the first of its kind to be played in this country. The results of the morning round were as follows:—

Burt, Boulton & Haywood, Ltd.—Capt. Stobart 1, Lord Dunmore 1, Mr. D. H. Boulton 0, Capt. Yonge 1; total 3.

Robt. Ingham, Clark & Co.—Mr. F. W. F. Clark 0, Mr. R. F. Clark 0, Mr. R. H. I. Clark 1, Mr. S. Hornsby 0; total 1.

The afternoon play left the Directors of Messrs. Burt, Boulton & Haywood, Ltd., with three points to their opponents' one, the position remaining as in the morning. Now that the first step has been taken we should not be surprised to hear that similar friendly contests have been arranged between the Directors of other houses. A good deal is said and written concerning clubs formed to promote the social welfare of the employees of various manufacturing concerns, but it is seldom that anything is heard of any effort being made to bring together the executive heads of large business undertakings.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

MAY 30.—**Andover.**—HOUSES.—Erection of 17 and 16 houses on two sites, for the T.C. Mr. H. R. Cowley, architect, Bank Chambers, 26, High-street, Southend-on-Sea. Deposit, £2 2s.

MAY 30.—**Basford.**—HOUSES.—Erection of 78 houses in various parishes, for the R.D.C. Mr. S. Maylan, Surveyor, Public Offices, Basford.

MAY 30.—**Foleshill.**—HOUSES.—Erection of 44 houses at Bedworth, 20 at Binley, 14 at Foleshill and 16 at Keresley, for the R.D.C. Mr. A. E. Newey, Surveyor, Council Offices, Foleshill.

MAY 30.—**Huddersfield.**—CLASSROOMS.—Erection of temporary wooden classrooms at St. Joseph's School, Commercial-street. Messrs. J. Berry & Sons, architects, 3, Market-street, Huddersfield.

MAY 30.—**Lanark.**—HOUSES.—Erection for the C.C. of the following houses: Eastfield (Rutherglen) 102 houses, 38 blocks; Auchinairn scheme, 72 houses, 18 blocks; Carmunnock scheme, 24 houses, 8 blocks. Mr. Jas. A. M'Callum, District Clerk, 15, West George-street, Glasgow. Deposit, £1 1s.

MAY 30.—**Lanchester.**—CONVENIENCE.—Erection of public urinal, &c., at Burnhope, for the R.D.C. Mr. J. R. Lupton, Surveyor, Lanchester, Durham.

MAY 30.—**Londonderry.**—HOSPITAL.—Erection of infectious diseases intercepting hospital at Ballyralten, for the Port Sanitary Authority. Mr. J. M. Robinson, engineer, 7, Market Buildings, Derry.

MAY 30.—**Romford.**—COTTAGES.—Erection of 38 cottages at Crowlands and Fiddlers Hall Farms Romford, for the Small Holdings Committee of the Essex C.C. Mr. Jno. Stuart, County Architect, Springfield Old Court, Chelmsford. Deposit £2 2s.

MAY 30.—**Stalybridge.**—HOUSES.—Erection of 43 houses, for the T.C. Borough Surveyor, Town Hall, Stalybridge. Deposit £2 2s.

MAY 31.—**Brecon.**—HOUSES.—Erection of one block of three cottages and three pairs of cottages, on the Maendu-street site, for the T.C. Mr. Walter Rosser, architect, 72, Bridge-street, Newport, Mon. Deposit, £3 3s.

MAY 31.—**Exeter.**—PAINTING.—Painting and colouring certain schools. Mr. John Bennett, City Architect, 6, Southernhay West, Exeter.

MAY 31.—**Flintshire.**—PAINTING.—For painting and colouring 44 schools, for the E.C. County Surveyor, County Buildings, Mold.

MAY 31.—**London, W.12.**—REPAIRS AND SANITARY WORK.—The Shepherd's Bush Discharged and Demobilised Sailors' and Soldiers' Federation invite tenders for the following contracts: 1, Exterior decoration and repairs; 2, fixing lavatory accommodation. Mr. D. T. Lungley Moore, 15, Bridge-avenue, W. 6.

MAY 31.—**Ripon.**—DEMOLITION.—For pulling down and removal of unoccupied buildings situated 7, 8, 9, 9a, Water Skellgate. General Secretary, Y.M.C.A., Ripon.

MAY 31. — **Wakefield.** — PAINTING. — For internal painting at the County Hall, Wakefield. West Riding Architect, County Hall. Wakefield.

JUNE 1.—**Forehoe.**—HOUSES.—Erection of 10 houses at Wymondham, for the R.D.C. Mr. George J. Skipper, architect, 7, London-street, Norwich.

✱JUNE 1.—**Grantham.**—HOUSES.—Erection of 38 houses for the Borough Council on the Dysart-road site. Mr. F. O. Donaldson, Borough Architect, Guildhall, Grantham. Deposit £2 2s.

JUNE 1. — **Queensbury.** — MEMORIAL. — Contractors and monumental sculptors are invited to tender for the Queensbury War Memorial. Mr. J. Hainsworth, Council Offices, Queensbury.

JUNE 1.—**Morley.**—PAINTING.—Painting of chapel and school, for the Bethel United Methodist Church. Mr. S. Farrer, 123, Britannia-road, Morley.

JUNE 1. — **Stroud.** — HOUSES.—Erection of 46 houses in pairs on the Folly-lane site, for the U.D.C. Mr. A. Murray-Smith, Architect, Town Hall, Stroud, Gloucester.

JUNE 1.—**Westbury.**—COTTAGES.—Erection of 18 cottages in pairs, for the U.D.C. Mr. W. W. Snailum, architect, Church-street, Trowbridge.

JUNE 2.—**Abersychan.**—HOUSES, ETC.—(1) Construction of roads and sewers; (2) erection of 100 to 115 houses, for the U.D.C. Architect's Department, Co-operative Wholesale Society, Ltd., St. Mary-street, Cardiff. Deposit, £2 2s.

JUNE 2.—**Barrow-upon-Soar.**—PAINTING.—Painting and cleaning of the Union Workhouse and Children's Home, Rothley, for the Board of Guardians. Mr. G. T. Dean, Mountsorrel, Loughborough.

JUNE 2. — **Bexley Heath.** — HOUSES.—Erection of 11 pairs and two blocks of four houses each, for the U.D.C. Mr. Walter M. Epps, Architect, Council Offices, Bexley Heath.

JUNE 3.—**Chelsea, S.W.3.**—CLEANING AND PAINTING.—Cleaning and painting the exterior and interior of the Town Hall, King's-road, Chelsea. Office of the Borough Surveyor (Mr. T. W. E. Higgens), Town Hall, King's-road, Chelsea, S.W.3.

JUNE 3.—**Dublin.**—HOUSES.—Erection of 60 cottages of concrete construction at Fairbrothers Fields area, for the T.C.. City Architect, 18, Rutland-square, Dublin. Deposit £2.

JUNE 3.—**Keighley.**—HOUSES.—Erection of one block of four houses on the Broomhill Estate. Borough Engineer, Town Hall, Keighley.

✱JUNE 3.—**Kensington, W.**—COTTAGES.—Erection of 10 cottages at Mary-place, Notting Hill, for the Royal Borough Council. Mr. A. S. Soutar, 8, King William-street, Charing Cross, W.C.2. Deposit £2 2s.

JUNE 4.—**Guildford.**—PAINTING.—Painting work and minor repairs to the elementary schools, for the T.C. Borough Surveyor, Guildford.

JUNE 4.—**Hemsworth Hall.**—CONVERSION.—Adaptation and conversion into a secondary school of Hemsworth Hall, for the West Riding E.C. Education Architect, County Hall, Wakefield.

JUNE 4.—**Llanybyther.**—HOUSES.—Erection of eight houses, for the R.D.C. Mr. E. Llewelyn Lewis, architect, High-street, Lampeter. Deposit, £2 2s.

JUNE 4.—**Staines.**—HOUSES.—Erection of 94 houses for the U.D.C. Mr. E. J. Barnet, Surveyor, Town Hall, Staines. Deposit, £2 2s.

JUNE 4.—**Wimborne.**—REPAIRS.—Repairs at Kingdown Rifle Range, Wimborne, for the Dorset Territorial Force Association. Mr. F. T. Maltby, architect, Dorchester.

✱JUNE 6. — **Braintree.** — CONVERSION.—Conversion and adaptation of "Bocking Place" into a higher elementary school, for the Essex County Council. Mr. Jno. Stuart, F.R.I.B.A., County Architect, Old Court, Springfield, Chelmsford. Deposit, £2 2s.

JUNE 6.—**Callington.**—HOUSES.—Erection of 14 houses, for the U.D.C. Mr. Claude Truscott, architect, Downgate, Pensilva, Liskeard.

JUNE 6.—**Croydon.**—EXTENSIONS.—Small extensions and alterations at the Union House, Queen's-road, Croydon. Mr. Henry Berney, architect, 33–35, High-street, Croydon. Deposit £5 5s.

JUNE 6.—**Dunfermline.**—HOUSES.—Erection of 24 houses at High Valleyfield, for the Fife C.C. Mr. H. F. Hodge, District Engineer, County Buildings, Dunfermline. Deposit £1.

JUNE 6.—**Greenock.**—HOUSES.—Erection of 18 tenements and 6 double cottages, for the T.C. Office of Public Works, Municipal Buildings, Greenock. Deposit, £1 1s.

✱JUNE 6.—**Nuneaton.**—HOUSES.—Erection of 100 houses and construction of new streets and sewers, in one contract or in groups of 22, 24, 26 and 28 houses, for the Borough Council's Housing Scheme on the Attleborough Site. Mr. R. C. Moon, Borough Surveyor, Municipal Offices.

JUNE 6.—**West Suffolk.**—PAINTING, ETC.—Painting and repairs to Council and Secondary Schools at Aldham, Glemsford, Great Wratting, Newmarket St. Mary, Haverhill, Long Melford Cookery Room, Sudbury, Sudbury Grammar School, and the County School, Bury St. Edmund's, for the West Suffolk C.C. Mr. A. Ainsworth Hunt, County Architect, 51a, Abbeygate-street, Bury St. Edmund's.

JUNE 7.—**Coventry.**—SORTING OFFICE.—Erection of a new sorting office, at Coventry, for H.M. Office of Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit, £1 1s.

JUNE 8.—**East Stow.**—HOUSES.—Erection of six pairs of houses at Stowupland, for the R.D.C. Messrs. Hunt & Coates, architects, 51, Abbeygate-street, Bury St. Edmund's. Deposit £3 3s.

JUNE 8.—**Hanley, Staffs.**—HUTTING.—Erection of hutting accommodation and alterations to the Employment Exchange at Hanley. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit, £1 1s.

JUNE 8.—**Neath.**—ALTERATIONS.—Alterations and additions to Glamorgan Farm School, Ty-Segur, Neath, for the C.C. County Architect's Office, Metropolitan Chambers, Neath.

JUNE 8.—**South Rotherham.**—WHITEWASHING.—For whitewashing, colour washing, &c., at the Swallownest Hospital, for the South Rotherham, Handsworth, and Kiveton Park District Joint Isolation Hospital Committee. Messrs. Creswick & Son, 9, East Parade, Sheffield.

JUNE 8.—**Various Places.**—PAINTING.—(1) Cleaning and painting stations, etc., Bedford and Hitchin; (2) Goods depots, Walsall and Wolverhampton; (3) Kentish Town passenger station and loco; (4) Goods depot, Bow, London; (5) Rental property at Normanton, Sandal and Walton, and Royston; (6) Station buildings, etc., Monk Bretton, Ryland Sidings, and Barnsley passenger and goods stations; (7) Station buildings, etc., at Grindleford to Edale; for the Midland Railway Co. Engineer's Offices, Derby Station.

JUNE 9. — **Kidderminster.**—ALTERATIONS.—Alterations to the Employment Exchange. Contracts Branch, King Charles-street, London, S.W. 1. Deposit, £1 1s.

JUNE 9.—**St. Annes-on-Sea.**—ALTERATIONS.—Alterations to the War Memorial Hospital, St. Annes-on-the Sea, and erection of an Operating Theatre. Mr. H. J. Carmont, Town Hall, St. Annes-on-the-Sea; Deposit £1 1s.

JUNE 10.—**Belfast.**—VILLA.—Erection of villa residence in Crumlin-road, for Mr. A. Bruce. Mr. J. V. Brennan, architect, Belfast Bank Chambers, Belfast.

JUNE 10.—**Friern Barnet.**—HOUSES.—Erection of 150 houses of various types for the U.D.C. Mr. F. H. Shearley, 1, Featherstone Buildings, High Holborn, W.C. 2. Deposit £2 2s.

✱JUNE 10.—**Hammersmith.**—SHOPS, FLATS AND COTTAGES.—(*a*) Erection of 12 shops with 36 flats over, in two blocks, fronting the Central-square; and (*b*) 28 "A3" type houses for the Borough Council. Messrs. Hare & Lisle, architects, 2, Gray's Inn-square, W.C.2, and Mr. M. J. Dawson, 9, New Square, W.C.2. Deposit £2 2s.

JUNE 10.—**Warrington.**—PAINTING.—For painting and decorating various schools, for the T.C. Mr. Andrew M. Kerr, Borough Engineer, Warrington.

JUNE 11.—**Ormskirk.**—HOUSES.—Erection of 32 houses, for the U.D.C. Council Offices, Burscough-street, Ormskirk. Deposit £3 3s.

JUNE 11.—**Todmorden.**—HOUSES.—Erection of 88 houses, for the T.C. Mr. J. A. Heap, Borough Engineer, Municipal Offices, Todmorden.

JUNE 13.—**Greenwich.**—HOUSES.—Erection of 128 pairs of houses on the Charlton housing estate, for the B.C. Town Clerk's Dept., Town Hall, Greenwich. Deposit £2 2s.

JUNE 14.—**Crewe.**—ALTERATIONS.—Alterations to Crewe Station Sorting Office. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit, £1 1s.

✱JUNE 16.—**France.**—Fourth programme of construction, consisting of approximately 23 Cemeteries in France. Applications for tender documents should be addressed: Contract 1921 D., Secretary (Works Dept.), Imperial War Graves Commission, 82 Baker-street, London, W. 1. Deposit, 15 guineas.

✱JUNE 16.—**Retford, Notts.**—BUILDING.—Erection of a new Post Office at Retford. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit, one guinea.

JUNE 17.—**Coventry.**—BUILDING.—Erection of a new sorting office at Coventry. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit £1 1s.

✱JUNE 17.—**Lancaster.**—BUILDING.—Erection of additional buildings at Rufford Hall Sanatorium. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit, £1 1s.

JUNE 18.—**Glossop.**—ALTERATIONS, &c.—Taking down the present cookhouse, &c., at the Poor Law Institution and for rebuilding same; also for providing and fitting modern steam cooking apparatus. Master of the Poor Law Institution, Glossop. Deposit £2 2s.

JUNE 22.—**Rossington.**—PLASTERING.—Erection of new school at Rossington (plasterer's work), for the West Riding C.C. West Riding Education Architect, County Hall, Wakefield.

✱JUNE 26.—**Bristol.**—BUILDING.—Construction of an engine house and other works at Cheddar, for the Bristol Waterworks Co. Messrs. T. & C. Hawksley, Civil Engineers, 62, Broadway, Westminster, S.W., or at the Office of the Company.

JUNE 30.—**Pulborough.**—COTTAGES.—Erection of 30 cottages in various parishes for the R.D.C. Mr. Percy Ayling, Clerk to the Council, Council Offices, Storrington, Pulborough.

✱NO DATE.—**Basingstoke.**—HOUSES.—Erection of 32 houses in various parishes, for the R.D.C. Messrs. Wallis & Smith, architects, Cross-street, Basingstoke.

NO DATE.—**Bo'ness.**—HOUSES.—Erection of a second instalment of houses, for the T.C. Mr. John Louden, Director of Housing, Burgh Chambers, Bo'ness.

NO DATE.—**Dumbarton.**—SCHOOL.—For the heating apparatus, plumber work, slater work, painter work, corrugated steel pale fencing and electric installation in connection with construction of school at Whitecrook, Clydebank, for the Dumbarton E.C. Education Offices, 18, Park Circus, Charing Cross, Glasgow, W. Deposit, 10s. 6d.

NO DATE.—**Leeds.**—HOUSE.—Erection of small detached house, Forest-lane, Starbeck. Mr. Fred Mitchell & Sons, architects, 9, Upper Fountaine-street, Leeds.

✱NO DATE.—**London, E.C.**—ROOFING.—Erection of roof on uprights covering a large area, now open and paved with granite setts, into which the uprights could be concreted. City Surveyor's Office, Guildhall, E.C.2.

NO DATE.—**Pocklington.**—HOUSES.—Erection of 20 houses, for the R.D.C. Mr. H. P. Maxwell, architect, Market-place, Pocklington. Deposit £2 2s.

FURNITURE, MATERIALS, etc.

MAY 31.—**Dover.**—ROAD MATERIALS.—Supply of road materials and team labour, for the R.D.C. Mr. C. Dacre Carder, clerk, 17, Market-square, Dover.

JUNE 2.—**London.**—SCREW COUPLINGS.—Supply to the High Commissioner for India of screw couplings. Director-General of Stores, India Office, Whitehall, S.W.1.

JUNE 4.—**Alvaston.**—ROAD MATERIALS.—Supply of 200 tons of 2½ in. limestone, 50 tons 1½ in. limestone, 100 tons ¾ in. slag chippings, for the U.D.C. Mr. J. Gretton, Clerk, Full-street, Derby.

JUNE 4.—**North Walsham.**—ROAD MATERIALS.—Supply of broken granite and slag. Mr. T. Wrigley, surveyor, North Walsham.

JUNE 9. — **Nottingham.** — MATERIALS. — Supply of materials to the Works and Ways Committee. Mr. A. Brown, City Engineer, Guildhall, Nottingham.

JUNE 14.—**Aberdeen.**—RAILWAY STORES.—Supply to the Great North of Scotland Railway Co. of stores for six months. Stores Superintendent, 80, Guild-street, Aberdeen. Charge 1s. per form.

JUNE 14.—**West Ham.**—MATERIALS.—Supply of builders' materials, fittings, etc., for three months, for the Board of Guardians. Mr. T. Smith, clerk, Union Offices, Leytonstone, E.

ENGINEERING, IRON AND STEEL.

MAY 31.—**Lanark.**—Supply of three motor ambulances to the Education Authority of the County of Lanark. Mr. Thomas Munro, Clerk and Treasurer, 1, Clydesdale-street, Hamilton.

MAY 31.—**London.**—METALS.—Supply to the Madras and Southern Mahratta Railway Company of metals (antimony, brass, copper, lead and zinc). Secretary, 25, Buckingham Palace-road, Westminster, S.W. 1. Charge 1s.

JUNE 1.—**Braintree.**—BOILER.—For setting a Cornish boiler, 18 ft. by 5 ft. 6 in., at the Water Works of the U.D.C. Mr. H. H. Nankivell, Surveyor, Vestry Hall, Braintree.

JUNE 1.—**Edinburgh.**—STEELWORK.—For the steelwork required for the construction of the electricity sub-station at Causwayside, for the T.C. Sir Alexander B. W. Kennedy, engineer, 17, Victoria-street, Westminster, S.W.

JUNE 1.—**Northmolton.**—HEATING INSTALLATION.—Heating installation, for the Church Council of Northmolton, N. Devon. Rev. Edgar Bell, Northmolton.

JUNE 2.—**Wanstead.**—MOTOR FIRE TENDER.—For a 40 b.h.p. motor fire tender with first aid outfit and telescopic ladder, for the U.D.C. Surveyor, Council Offices, Wanstead, E. 11.

JUNE 6.—**Tiverton.**—WATER SUPPLY.—For the driving of an adit and other works at Paceycombe, Bradninch, for the R.D.C. Mr. R. Ellis, Sanitary Inspector, Tiverton.

JUNE 7.—**Brighton.**—OIL FUEL BURNING INSTALLATION.—Supply and erection of oil fuel burning installation at Electricity Works. Mr. J. Christie, engineer, Electricity Works, Brighton. Deposit, £2 2s.

JUNE 7.—**Bristol.**—WATERWORKS.—The Directors of the Bristol Water Works Co. invite tenders for trench work, laying and jointing of about 1,300 yards of 33-in. cast iron socket pipes, the construction of about 3¼ miles of cast iron and stoneware sewers, drains, and mains, and construction of sewage outfall works. Messrs. John Taylor & Sons, engineers, 36, Victoria-street, Westminster, S.W. 1. Deposit, £5.

JUNE 7.—**Shoreditch.**—VARIOUS WORKS.—(a) Constructional steel and ironwork building; (b) 20-ton weighbridge; (c) certain high-pressure steam pipes, valves, &c., for the Electricity Committee of the B.C. Mr. C. Newton Russell, Borough Electrical Engineer, Electricity Supply Department, Coronet-street, Shoreditch, N. 1. Deposit, £1 each.

JUNE 8.—**Clapton.**—PUMPING MACHINERY.—Supply and erection of pumping machinery at Lea Bridge, Clapton, N.E., for the Metropolitan Water Board. Chief Engineer's Department, 173, Rosebery-avenue, Clerkenwell, E.C. 1. Deposit, £3 3s.

JUNE 8.—**London.**—METALS.—Supply to the South Indian Railway Co. (1) metals (brass, copper, lead, &c.); (2) white metal. Company's Offices, 91, Petty France, Westminster, S.W. 1. Charge, 10s.

JUNE 8.—**Ventnor.**—REPAIRS TO PIER.—Repairs to tie rods, &c., to the Royal Victoria Pier and Landing Stage, for the U.D.C. Mr. D. V. Howard, Surveyor, Town Hall, Ventnor, I.W.

JUNE 10.—**Durham.**—CAST-IRON PIPES.—Supply of about 9,000 tons of cast-iron pipes, about 5,230 ft. of heavy steel pipes, of 30 in. internal diameter, for the Durham County Water Board. T. &. C. Hawksley, Civil Engineers, 62, Broadway, Westminster, S.W.1 Deposit £3 3s. each contract.

JUNE 10. — **London.**—SPRINGS.—Supply to the Bombay, Baroda, and Central India Railway Co. (1) Helical and volute springs; (2) laminated springs. Mr. S. G. S. Young, Secretary, 91, Petty France, Westminster, S.W. Charge £1 (1), 10s. (2).

JUNE 11.—**Hackney.**—AMBULANCE.—For a petrol or electric motor ambulance, for the Board of Guardians. Clerk to the Guardians, Hackney Uuion, 2, Sidney-road, Homerton, E. 9.

JUNE 15.—**Walton-on-Thames.**—PUMPING MACHINERY.—Supply and erection of pumping machinery near Walton-on-Thames, Surrey, for the Metropolitan Water Board. Mr. Henry E. Stilgoe, Chief Engineer, Offices, Rosebery-avenue, E.C. Deposit, £5.

JUNE 20.—**China.**—BRIDGE.—The Peking-Hankow Line (Chinese Government Railways) invites sealed proposals for designing and building a new steel bridge, about 2,000 metres in length, across the Yellow River (Hoanho). Plans, &c., by telegraph from the following offices: Peking-Hankow Railway, Peking, China; Chinese Legation, London; British Legation, Peking, China. Deposit, £6.

JULY 5.—**South Africa.**—GRAIN ELEVATORS.—The South African Railways and Harbours authorities have extended the date for tenders for grain elevators to July 5, 1921. Mr. R. A. Blankenberg, Secretary, Office of the High Commissioner for the Union of South Africa, Trafalgar-square, W.C. 2.

JULY 26.—**Bombay.**—WATER WORKS.—The invitation for tende s for the construction of 105 miles of steel and reinforced concrete pipe lines in connection with the water scheme for the Corporation, has been extended to July 26. Messrs. J. Taylor & Son, 36, Victoria-street. Deposit, £2.

AUGUST 20.—**Mansfield.**—SALVAGE PLANT.—Erection of salvage plant at the Health Depot, comprising: (1) Refuse screening plant in two units, with total capacity of 100 tons per day, cinder washers, elevators and conveyors; (2) steel-framed building; (3) extension of tipping platform, for the T.C. Mr. Waude Thompson, Borough Engineer, Market-street, Mansfield. Deposit, £2 2s.

AUGUST 29. — **Johannesburg.**—MACHINERY.—Erection of machinery, &c., for extension of by-products plant, municipal abattoirs, Johannesburg. Messrs. E. W. Carling & Co., St. Dunstan's-buildings, St. Dunstan's-hill, London, E.C.3. Deposit, £1 1s.

ROAD, SANITARY, AND WATER WORKS.

MAY 30.—**Cowbridge.**—ROADS, ETC.—Construction of the roads and sewers in connection with the Housing Scheme at St. Athans of the R.D.C. Mr. Edward Loveluck, architect, 12, Dunraven-place, Bridgend. Deposit £3 3s.

MAY 30.—**Easington.**—ROADS, ETC.—Construction of roads and sewers for a housing scheme at Trimdon, co. Durham (80 houses), for the R.D.C. Mr. J. Wilson Hays, architect, Wingate, co. Durham. Deposit, £2.

MAY 30.—**Glasgow.**—PAVING.—Paving of several streets with compressed rock asphalte, for the T.C. Office of Public Works, 64, Cochrane-street, Glasgow.

MAY 30.—**Lanchester.**—SANITARY.—For Craghead and Cornsay scavenging, for the R.D.C. Mr. J. R. Lupton, surveyor, Lanchester, for Craghead; and to Mr. G. W. Westgarth, surveyor, Lanchester, for Cornsay.

MAY 31.—**Wincanton.**—BOREHOLE.—Sinking and testing of an 8 in. diameter borehole at Milborne Wick, for the R.D.C. Mr. A. P. I. Cotterell, engineer, 17, Old Queen-street, Westminster, S.W. 1. Deposit, £2 2s.

JUNE 1.—**Chippenham.**—SEWAGE DISPOSAL WORKS.—Construction of sewage disposal works, for the U.D.C. Mr. A. E. Adams, Borough Engineer, High-street, Chippendam, Wilts. Deposit, £2 2s.

✱JUNE 1.—**Hove.**—TAR PAVING.—Providing and laying about 20,051 yds. superficial tarred Macadam in Kingsway for the Borough of Hove. Mr. H. M. Scott, Borough Surveyor, Town Hall, Hove.

JUNE 1.—**Workington.**—ROADS AND SEWERS.—Construction of roads and sewers in connection with Salterbeck housing scheme, for the T.C. Mr. H. B. Williams, Borough Engineer, Workington. Deposit, £3 3s.

JUNE 4.—**Manchester.**—ROADS.—Sewering, draining, kerbing, &c., of Wilbraham-road Estate, for the T.C. City Engineer's Office, Town Hall, Manchester. Deposit £1 1s.

JUNE 8.—**Middleton.**—CULVERT.—Erection of a culvert, 80 ft. in length, in brick and concrete, &c., for the T.C. Tenders for a similar culvert, in reinforced concrete, from firms specialising in this class of work will also be considered if full details of proposed system, &c., are submitted with the tender. Borough Engineer, Town Hall, Middleton, Lancs. Deposit £2 2s.

JUNE 10.—**Cumberland.**—SANITARY.—Drainage work in connection with latrines at Broughton Moor Council School and Aspatria Council School, for the Cumberland E.C. Mr. J. Forster, County Architect, The Courts, Carlisle. Deposit £1 1s.

JUNE 22.—**Ilkley.**—PLAYING FIELDS.—Formation of playing fields on the vacant land adjoining Ben Rhydding Council School. West Riding Education Architect, County Hall, Wakefield.

✱NO DATE.—**Salop.**—SANITARY.—Sanitary arrangements and for alterations and additions to the Lawley (Wallington) Council School for the Salop Education Committe. Mr. H. E. Wale, Secretary, County Buildings, Shrewsbury.

NO DATE.—**Woodford.**—WHARFING.—For wharfing (length about 37 yards) at river near Chigwell-road, for the U.D.C. Mr. William Farrington, Surveyor, Council Offices, Woodford Green, Essex.

Auction Sales, Tenders, etc.

✱MAY 31.—**London, S.E.**—Messrs. Veryard & Yates will sell (without reserve)—expiration of lease to clear site for building, Regency-square, Lower Kennington-lane, S.E.(1 minute from New-street Station)—valuable builder's plant and materials. Auctioneers, 365, Norwood-road, S.E. 27.

✱JUNE 2.—**London, S.W.**—Messrs. Veryard & Yates will sell timber, etc., from demolition of buildings, removed for convenience of sale, to 255, Clapham-road, S.W. (close to the "Swan" Stockwell). Auctioneers, 365. Norwood-road, S.E. 27.

✱JUNE 7.—**Holloway, N.**—Messrs. Joseph Hibbard & Sons will sell, upon the premises, No. 18, Bardwell-street, North-road, plant, machinery and stock of packing case manufacturers. Auctioneers, Newington Green, Islington, London, N.16.

JUNE 9.—**Chislehurst, Kent.**—Messrs. Knight, Frank and Rutley will sell, in the Hanover-square Estate Room, the freehold building site known as "The Bush," Chislehurst-road, including Lodge Cottage. Auctioneers, 20, Hanover-square, W.1.

JUNE 9.—**Shooters Hill.**—Messrs. Knight, Frank & Rutley will sell in the Hanover Estate Room, freehold building land extending to about 52¼ acres, on the Shrewsbury Estate. Auctioneers, 20, Hanover-square, London, W. 1.

✱JUNE 15.—**London, E.C.**—Messrs. Baxter, Payne & Lepper will sell by auction, by order of the Trustees, at 155, Queen Victoria-street—Grove Park, Kent, consisting of: Lot 1, freehold building land at Chinbrook-road (area about 3a. 0r. 23p.); Lot 2, freehold meadow land adjoining S.E. & C. Rly. (area about 43a. 1r. 27p.), with possession. Auctioneers, Bromley, Kent.

Competitions.

(See Competition News, page 674.)

Public Appointments.

MAY 30.— **Manchester.**— Temporary Manager of the Direct Labour Section at Blackley of the Housing Department in connection with the City Council's Housing Scheme. Thomas Hudson, Town Clerk, Town Hall, Manchester.

✱MAY 31.—**Bermondsey, S.E.**—Sanitary Inspector required by the Borough Council. Mr. Fredk. Ryall, Town Clerk, Town Hall, Spa-road, S.E.16.

MAY 31.— **Liverpool.**— Chief Assistant to the Principal of the Estate and Rating Department of the Mersey Docks & Harbour Board. Mr. L. A. P. Warner, General Manager and Secretary, Dock Office, Liverpool.

✱JUNE 1.—**Battersea, S.W.**—Surveyor's Assistant (temporary) required in the Borough Surveyor's Office by the Borough Council. Town Clerk, endorsed "Surveyor's Assistant," Town Hall, Battersea.

✱JUNE 2.—**Ely.**—Election of a diocesan surveyor or surveyors for the Diocese of Ely for the period of three years from that date. All applications for the post should be addressed to the Bishop of Ely and should be sent c/o. F. Hugh Lee, Esq., No. 1, The Sanctuary, Westminster, S.W.1.

JUNE 3.— **London.**— Hydrant inspector in the department of the Chief Officer of the Fire Brigade required by the L.C.C. Clerk of the Council, County Hall, Spring-gardens, S.W.1.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than Tuesday evening.*

* Denotes *accepted.* † Denotes *provisionally accepted*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modifications.*

BARNES.—Supply of half-ton ash and goods hoist, for the U.D.C.:—

*H. Morris & Co., Loughborough..	£127 10

BARNSLEY.—For painting of Maternity Home, for the T.C.:—

*Co-operative Society	£350 10

CONGLETON.—For erection of houses, for the R.D.C.:—

*S. Jackson—12 at Betchton.....	£9,780
*G. Edwards— 8 at Hassall.....	6,400

ERPINGHAM.—For the erection of four houses at Overstrand, for the R.D.C.:—

*A. G. Brown.....	£3,129
G. A. Lines	3,430
Girling & Smith.....	3,280

GLASSFORD.—Erection and equipment of proposed new school at Glassford, for the Glassford education authority:—

Excavator, brick, etc., work—	
William Allan, Strathaven....	£2,104 7 8
Carpenter, joiner, glazier and ironmonger works—	
Alex. Bryson, Strathaven ..	1,895 1 0
Plumber work—	
Thomas Mitchell, Hamilton ..	436 2 2
Slater work and roughcasting—	
J. & J. Thomson, Motherwell..	387 19 11
Plaster work, concrete floors, and slab construction of walls—	
John Bertram, Strathaven ..	1,070 4 7
Iron fencing and gates—	
P. & R. Fleming & Co., Glasgow	387 4 6
Heating—	
James Combe & Son	378 10 0

(*Lowest Tenders.*)

GNOSALL.—Erection of 38 houses, for the R.D.C.:—

*B. T. Felton, Gnosall.....	£700 each

GOSPORT.—For war memorial hospital, new buildings. Messrs. Young & Hall, FF.R.I.B.A architects, 17, Southampton-street, Bloomsbury, W.C.:—

*John Hunt, Gosport.....	£25,305
Frank Privett, Southsea	25,487
John Croad, Gosport.....	26,962
Samuel Salter, Southsea	28,185

HAYWARD'S HEATH.—Erection of 20 houses, for the U.D.C.:—

*Stephen Horlock	£16,000

H.M. OFFICE OF WORKS.—Accepted during April:—

Building Works, &c.—Birmingham Inland Revenue Offices, adaptation: W. B. & F. T. Archer, Birmingham. British Museum, asphalte work: The Ragusa Asphalte Co., Ltd., London. Dundee Post Office extension, asphalting: Wm. Briggs & Son, Dundee; carpenter, joiner and ironmonger's works: Lickley Bros., Ltd., Dundee; glazier's work: Lindsay & Scott, Dundee; plaster work: James Laburn, Dundee; plumber's work: T. P. Fimister, Dundee; slater's work: James Laburn & Son, Dundee; steel work, &c.: T. Russell, Dundee. Erith Training Centre, adaptations and alterations: The Pitcher Construction Co., Ltd., London. Guildford Telephone Repeater Station, &c., erection: W. G. Tarrant, Ltd., Byfleet. Liverpool Inland Revenue Offices, adaptation: Morrison & Sons, Liverpool. Museum Telephone Exchange, alterations and additions: Griggs & Son, London. Norwich Instructional Factory, adaptation: W. J. Hannant, Norwich. Portsmouth and Gosport, various painting works: F. J. Privett, Southsea. Romford Training Centre, alterations and additions: The Pitcher Construction Co., Ltd., London. Sheffield Head Post Office, painting: Smith & Snape, Sheffield, Swansea Head Post Office, alterations and enlargement: Arding & Hobbs, Ltd., London.

Engineering Services.—Acton Ministry of Pensions, electric lifts, &c.: Hammond Bros & Champness, Ltd., London. Benenden Sanatorium, electric wiring: Bowden, Higlett & Co., Guildford. Blackpool Hospital, supply of engineering labour in daywork: Alfred Williams & Son, Preston; Concrete mixers: George Cohen, Son & Co., London. Leeds, supply of electrical labour in daywork: The Alpha Manufacturing Co., London. National Physical Laboratory, electric storage battery: The Premier Accumulator Co., Ltd., Northampton. Royal Mint, alterations to motors, &c.: Waygood-Otis, Ltd., London.

Fittings and Furniture, &c.—Joinery for Rampton: Wm. Boothman & Sons, Nelson. Shoreditch: Wm. Duncan, Tucker & Sons, Ltd., London. Yiewsley: W. H. Connelly, London; Morgan Bros., Southall.

KENT.—For sewerage works at Lenham Sanatorium, for the Kent C.C.:—

*A. E. Farr.....	£2,503

KENT.—Painting at Lenham Sanatoruim, for the Kent C.C.:—

*H. Meckhonik.....	£370

LONDON.—For renovations at Tate Public Library for the Wandsworth B.C.:—

*W. J. Sidey.....	£199

NEW ROMNEY.—For tar-painting roads in the borough, for the T.C. :—

*Bennett, Humphery, Gordon and Boulden—
At 1d. per 5 yards super.

OLDBURY.—For painting and decorating Abbey-road Schools and the exterior of the caretaker's house, for the U.D.C.—Mr. Roland Fletcher, Surveyor, Public Buildings, Oldbury :—

*J. E. Taylor, Smethwick	£335
B. Whitehouse & Sons, Birmingham	454
Turne Bros., Birmingham	480
Roden, Shermer & Jones, Birmingham	490
Humphrey Bros., Oldbury	579
F. Grice, Bournville	591
J. Reece, Smethwick	628
J. & W. Banks, West Bromwich	695
H. Grove & Co., Oldbury	746
Tilley & Green, Smethwick	1,243

SOUTHEND-ON-SEA.—For the renewal of foundations and surfacing of Marine Parade, Leigh, for the T.C.—Mr. R. H. Dyer, Borough Engineer : —

*W. Iles, Southend £2,770

RUGBY.—For erection of 198 houses on Whinfield Estate, for the U.D.C. :—

*Moss, Loughborough £172,958

RUSKINGTON.—For the erection of two pairs of houses and one block of four houses, all parlour type, for the U.D.C. Mr. F. Hossack, architect, Ruskington ; quantities by architect :—

†A. Tapster & Thompson, Sleaford	£6,690	0	6
F. Peck, Boston	6,835	0	0
Wallhead Bros., Ruskington	7,001	0	0
Maxey & Son, Sleaford	7,540	0	0

RYDE.—For the exterior painting at the Royal Isle of Wight County Hospital.—Mr. B. F. Holness, Borough Surveyor, Ryde :—

*W. A. Dallimore, Ryde	£255	0	
F. Graves, Ventnor	289	0	
H. Grinham, Ryde	260	0	
Woodford Bros., Sandown	370	10	

TANDERAGEE (Co. ARMAGH).—For the erection of eight semi-detached houses, for the U.D.C. :—

*T. Collen, Ballyknock, Tanderagee	£6,640	0	
R. Cullen, Portadown	7,024	0	
Hyde & Sons, Portadown	7,326	8	
McDowell & Fitzsimmons, Lurgan	7,840	0	
Copeland & Sons, Belfast	8,500	0	
Collen Bros., Portadown	9,600	0	

WEST HAM.—For painting and repairing of the exteriors of six schools for the B.C.—Mr John H. Jacques, Architect to the Committee, 2, Fen-court, Fenchurch-street, E.C. 3 :—

*Stoneley & Co., Forest-lane, Forest Gate—			
Elmhurst-road School	£436	0	0
Colgrove-road School	494	0	0
*J. Barker & Co., Plaistow—			
Grange-road Special School	174	0	0
Shipman-road School	466	0	0
*R. Haslam & Son, Woolwich—			
Hermit-road School	440	5	0
Napier-road School	476	18	0

WOLVERHAMPTON.—For the construction of new streets at Rough Hills housing estate, for the T.C. :—

*Taplin & Holland, Ltd., Birmingham	£11,930	17	2
A. Holloway, Wolverhampton	13,746	14	2
M. A. Boswell, Wolverhampton	14,075	10	11
G. P. Trentham, Ltd., Birmingham	14,149	4	3
Hussey & Egan, Birmingham	14,262	4	6
Martin & Element, Ltd., Smethwick	15,704	3	0
W. H. Rogers, Wolverhampton	16,520	0	0
W. Moss & Sons, Ltd., Loughborough	17,214	0	0
Currall, Lewis & Martin, Ltd., Birmingham	17,579	11	0
Radford, Tebbs & Co., Ltd., Derby	18,528	2	8
W. F. Greenly & Sons, Leominster	19,571	17	0
W. F. X. Hartigan, Wanborough	20,222	11	3

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